Preparing Kids for Capitalism: The Effect of German Reunification on the Intergenerational Transmission of Preferences*

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Abstract

Children and their parents resemble each other in terms of economic preferences such as patience and risk tolerance. What drives the intergenerational correlation in preferences? We build a model of preference formation that combines genetic transmission, state influence through childcare institutions, and altruistic parental socialization, where parents seek to endow children with preferences conducive to success. To assess the importance of these channels, we exploit German reunification as a natural experiment that simultaneously removed state indoctrination and transformed economic incentives. For risk tolerance—a trait with arguably high returns during a rapid transition to a market economy—parent-child correlations decline by more than a third among East German families after reunification, consistent with parents actively instilling new values in their children to prepare them for capitalism. For trust and patience, correlations rise as the state withdraws and socialization in the family looms larger. These contrasting patterns suggest that parents do not just aim to reproduce their own preferences but adapt their socialization effort to the world their children will face.

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1 Introduction

Economics has traditionally ascribed different economic outcomes across social groups to differences in endowments, technologies, or institutions, while taking preferences as fixed. In the words of George Stigler and Gary Becker, the viewpoint was that "tastes neither change capriciously nor differ importantly between people" (Stigler and Becker 1977). Recent empirical evidence shows that this view is outdated. Economic preferences vary widely not just across individuals but also across social groups and countries, and these differences matter for decisions and outcomes (Falk et al. 2018). Understanding how preferences are formed and interact with the economic environment is therefore an important challenge.

What is already known is that childhood is a crucial phase for preference formation (Heckman 2007), and that the family plays a central role. In particular, there is a strong positive correlation between the preferences of parents and their children (Dohmen et al. 2012; Chowdhury, Sutter, and Zimmermann 2022). Much less is known about the mechanisms underlying parent-child correlations and the broader variation in preferences across the population. Genetic transmission, imitation of parents, shared environmental exposures, and deliberate socialization by parents could all contribute to the similarity of parents' and children's preferences. The relative importance of these channels matters for whether, and how, institutions and the economic environment feed back into the distribution of preferences in the population.

To make progress on this issue, we first develop a theoretical model of preference formation in childhood that allows for a variety of forces that can generate parent-child correlations. For a given aspect of preferences such as risk tolerance, each individual has a genotype, which is a genetic proclivity for a trait, and a phenotype, which is the realized trait. The first stage of preference formation consists of genetic transmission, whereby a child inherits the parent's genotype with some probability. When a child has the genotype for high risk tolerance, it is more likely that the realized phenotype will also be of the risk-tolerant variety. Beyond genetic transmission, the formation of the phenotype is subject to two additional influences. First, parents may actively attempt to instill specific preferences in their children. Parents' choice of which preferences to transmit is motivated in part by a paternalistic desire to pass on their own phenotype; all else equal, parents prefer their children to resemble themselves.

Parents also have an altruistic motive to endow their children with preferences that are likely to make them successful. The altruistic motive induces feedback from the economic environment to preference formation; for example, if risk taking is highly rewarded in the economy, more parents will attempt to instill risk tolerance in their children. In addition to the role of parents, children's preferences are also shaped by the environment. Inspired by our application to German reunification, we focus in particular on the role of the state. The state has a role in designing childcare institutions and in deciding whether they should attempt to instill specific values in children. These influences imply that, in addition to the economic environment, institutions and policies also matter for preference formation.

Our aim is to shed light on the presence and relative importance of the transmission channels represented in our model. To do this, what is needed is an empirical setting where we can measure preference transmission and where there is substantial variation in both the economic environment and the role of the state. We believe that the reunification of Germany in 1990 is ideally suited to provide such a setting. The transition from a central planning system to a free market economy opened up new economic opportunities which altered the monetary and non-monetary rewards associated with certain preferences. In particular, risk-taking by entrepreneurs can yield high rewards in a market economy, whereas entrepreneurial returns are largely absent under central planning.[1] The reunification of Germany also came with drastic changes in institutions and the influence of the state. East Germany transitioned from a single-party dictatorship and surveillance state to a liberal democracy.

Importantly, reunification led to drastic changes in institutions that shape children's environment. In East Germany, prior to reunification, most mothers worked full time and children attended state-run childcare facilities from a young age, followed by all-day kindergarten and school. This system kept children under state control and was a vehicle for state indoctrination. According to East German law, the aim of the education system was to shape a 'socialist personality' (*sozialistische Persönlichkeit*), which includes a 'devotion to socialism' and a 'desire to protect socialism against all enemies.'[2] The West German model, by contrast, favored more traditional gen-

[1] See Van Praag and Cramer (2001), Cramer et al. (2002), Caliendo, Fossen, and Kritikos (2009), and Skriabikova, Dohmen, and Kriechel (2014) for evidence on the relationship between risk tolerance and entrepreneurship.

[2] Jugendgesetz der DDR of 1974, Section I, § 1.

der roles with mothers staying home full-time at least until their children started kindergarten, followed by half-day schools. Moreover, schools focused on teaching skills rather than shaping personalities or enforcing ideological conformity. After reunification, East Germany quickly shifted to the West German system, with rapid declines in childcare provision and maternal labor force participation, and an end to state indoctrination in educational institutions.

How would such a radical shift in the environment affect the formation of preferences in the family? The answer depends crucially on the relative importance of the transmission channels that are present in our theory. We develop a series of propositions characterizing how parent-child correlations in preferences (measured by regressions of children's on parents' traits) depend on the environment. If only genetic transmission is present and both state and parents are unable to shape preferences, parent-child correlations will be invariant with respect to the environment. Hence, in this case we would expect to observe similar parent-child correlations in East and West Germany, both for children growing up before and after reunification. Next, consider a setting where, in addition to genetic transmission, state indoctrination is present and effective, but parental socialization is either ineffective or focused on the paternalistic motive reproducing the parents' own traits in children. Here, the impact of the state unambiguously lowers parent-child correlations, both because of the direct influence of the state and because it lowers the scope for parental socialization. In our application, we would therefore expect to see lower parent-child correlations in preferences in the East versus the West before reunification, and then a marked rise in parent-child correlations in East German families after reunification, as the state withdraws and the impact of the family increases.

Lastly, consider the full model in which parents also have the altruistic motive. Given the large shift in the economic environment, altruistic parents may aim to endow their children with preferences that are conducive to future success in the new world, even if those preferences differ from their own. For example, parents may perceive that the return to risk tolerance has increased with reunification, due to higher returns to risk taking in a market economy and, more generally, the radical changes and uncertainty brought about by the transformation of East Germany. Because the altruistic motive pushes toward traits that are associated with success rather than toward the parents' own traits, parent-child correlations decline when a

changed economic environment elevates the impact of this deliberate socialization channel. If the altruistic channel is strong, we would therefore expect to observe a decline in parent-child correlations in East Germany after reunification for traits that are conducive to success in the new environment. Hence, for such traits the state indoctrination channel and the parental socialization channel have opposite predictions for how parent-child correlations should change with reunification. The direction of change observed in the data is therefore informative for the presence and relative strength of these channels.

We examine these predictions using data from the German Socio-Economic Panel (SOEP). The SOEP is a household survey that has been conducted annually since 1984 (with East German families included from 1990) and contains questions about people's preferences in different domains. One of its unique features is that it allows us to match parents with their adult children. Our analysis relies on comparing the preferences of adult children with those of their parents, testing whether parent-child correlations differ between families from East and West Germany, for cohorts of children raised before and after reunification. For our main analysis, we focus on attitudes toward risk. Due to the rewards for risk-taking in a market economy, risk preferences are particularly informative for the presence of the altruistic socialization channel. In addition, risk preferences are covered more extensively in SOEP than other preference dimensions, with consistent questions across many waves.

Our main empirical finding is that parent-child correlations in risk preferences are markedly lower for East German children whose key formative years fell in the reunification period. This effect is quantitatively large: compared to earlier cohorts, the coefficient in a regression of children's risk tolerance on parents' risk tolerance declines by more than a third. This is what our model predicts when the altruistic socialization channel is strong: given the large change in the economic and political environment, parents aim to instill preferences conducive to success (e.g., high risk tolerance), even if those preferences differ from their own. In contrast, if parents merely attempted to reproduce their own preferences, the withdrawal of the state after reunification from childcare and indoctrination should have led to an increase in parent-child correlations.

We examine the robustness of these findings to alternative explanations beyond the channels in our theoretical model. For example, we show that our results are not

driven by children who migrate to West Germany after reunification and thus experience a new local environment. Moreover, the decline in parent-child correlations is particularly pronounced in families with high parental involvement, supporting the view that deliberate socialization choices drive this pattern.

We also consider changes in the transmission of other dimensions of economic preferences, in particular patience, trust, and reciprocity. These preferences were measured in fewer waves, so sample sizes are smaller. Still, an interesting finding emerges: in the case of trust and patience, the results are consistent with a dominant role for the state indoctrination channel. For these traits, for cohorts raised before reunification, parent-child correlations were lower among East German families, whereas after reunification, correlations become indistinguishable from those in the West. This is what we would expect if socialization in the family is focused on reproducing the parents' own traits, given that the withdrawal of the state after reunification increased the family's role in children's upbringing. From the perspective of our theory, the results suggest that unlike for risk tolerance, parents did not perceive a major change in the returns to patience or trust after reunification, which elevates the relative importance of the state indoctrination channel.

Overall, the marked changes in preference transmission around reunification strongly support the notion that socialization is quantitatively important: if parent-child correlations arose primarily from genetic transmission, we should observe neither East-West differences nor a discontinuity at reunification. More specifically, socialization within the family matters. For all preference traits considered, intra-family transmission changes with reunification, and for risk tolerance these changes are particularly pronounced in families with high parental involvement. Lastly, our results suggest that parents do much more than reproducing their own preferences: deliberate, altruistically motivated socialization plays a central role in shaping children's preferences.

Our model of preference transmission combines elements from the cultural transmission literature (Cavalli-Sforza and Feldman 1981; Bisin and Verdier 2000, 2001, 2010), where parents typically have a paternalistic motive to reproduce their own type, with models of deliberate socialization driven by altruistic motives (Doepke and Zilibotti 2008, 2017, 2019; Doepke, Sorrenti, and Zilibotti 2019; Agostinelli et al. 2025, 2026). The role of state indoctrination has been considered by Ticchi, Verdier,

and Vindigni (2013), and models of endogenous preferences driven by genetic transmission have been developed by Galor and Moav (2002) and Galor and Özak (2016). The application to risk tolerance builds on models linking endogenous preferences to entrepreneurship and innovation (Galor and Michalopoulos 2012; Doepke and Zilibotti 2014; Klasing 2014; Klasing and Milionis 2014). Our framework is the first to integrate genetic transmission, state influence, and altruistic parental socialization, and to derive testable predictions that distinguish between these channels.

Our research also relates to empirical work on intergenerational preference transmission. Existing work has documented strong parent-child correlations across preference domains (Dohmen et al. 2012; Alan et al. 2017; Zumbuehl, Dohmen, and Pfann 2021; Falk et al. 2021; Brenøe and Epper 2022), and studies using twins and adoptees have quantified the role of genetics for risk preferences and entrepreneurship (Nicolaou et al. 2008; Cesarini et al. 2009; Lindquist, Sol, and Van Praag 2015). Our contribution is to show how preference transmission in the family responds to large changes in the environment and how contrasting responses across preference traits can be used to identify specific transmission channels.

Lastly, we build on the literature that exploits German reunification as a natural experiment. Alesina and Fuchs-Schündeln (2007) examine the impact of reunification on political and social preferences and Bondar and Fuchs-Schündeln (2023) document parent-child correlations in political preferences for cohorts born after reunification. Other work has documented effects on gender attitudes, trust, and financial behavior.[3] Our research is the first to examine how reunification changed the transmission of preferences within the family.[4]

In the following section, we describe the institutional background for our study, including the differences in education systems between East and West Germany and

[3]See Fuchs-Schündeln and Schündeln (2005), Redding and Sturm (2008), Campa and Serafinelli (2019), Rainer and Siedler (2009), Lippmann, Georgieff, and Senik (2020), Laudenbach, Malmendier, and Niessen-Ruenzi (2026), and Boelmann, Raute, and Schönberg (2025).

[4]Research using German reunification as a natural experiment has recently been criticized by Becker, Mergele, and Woessmann (2020), who argue that the German-German border separated regions with distinct cultures and histories and that the two Germanies were differently affected by World War II and the subsequent occupation. This criticism is less relevant for our analysis, which focuses on differential changes in parent-child transmission around reunification between East and West akin to a diff-in-diff design, rather than considering persistent East-West differences in levels. Our research design holds constant time-invariant differences between East and West Germans, such as those driven by historical characteristics or selective migration.

the changes that came with reunification. In Section 3 we develop our theoretical model, we derive results on how preferences transmission reacts to changes in institutions and the economic environment, and we provide an application of our model to the transmission of risk tolerance and trust. Section 4 discusses our empirical results and Section 5 concludes.

2 Institutional Background

2.1 The Separation and Reunification of Germany

In 1945, following the end of World War II, the Allied countries divided Germany into four occupation zones. In 1949, the three western zones under French, British, and American control became the Federal Republic of Germany (West Germany), and the eastern zone, controlled by the Soviet Union, became the German Democratic Republic (East Germany).The former capital Berlin was likewise divided into East and West Berlin, with West Berlin completely surrounded by East German territory. After separation, the two countries rapidly diverged in their political and institutional trajectories. West Germany became a liberal democracy with a free-market economic system and developed alliances with Western countries such as the United States and its western European neighbors. East Germany, by contrast, became part of the Communist bloc under Soviet leadership, turning into a single-party dictatorship with a centrally planned economy. In 1961, East Germany completed the separation by building the Berlin Wall and a fortified barrier along the inner-German border. East Germany then built an extensive surveillance state and enforced strict control over the media. Following the collapse of the Communist bloc in the late 1980s, the Berlin Wall was opened in November 1989, allowing the free movement of people between the two parts of the country. This marked the end of Communism in East Germany. After a short period of uncertainty about its political future, the former East German territory was incorporated into West Germany in October 1990. As a result, East Germany adopted the West German political and economic system along with its institutions and laws essentially overnight.

2.2 Educational Systems in East and West

Child-rearing systems diverged between East and West Germany during the separation. West German children generally spent their early childhood (ages 0-3) in the

care of their families, usually to be looked after by stay-at-home mothers. This was followed by kindergarten (ages 3–6), primary school (grades 1–4), and secondary school. Overall, children attended school for 9 to 13 years depending on whether they followed a vocational or academic track. Kindergarten and primary school programs usually ended around noon, and secondary school in the early afternoon. Schools generally did not provide meals, and after-school care was rare, so children had to be fed and cared for at home. In West Germany, nurseries and after-school care have expanded substantially only in recent years, and the formerly dominant model of a male breadwinner and a mother who is a homemaker or part-time worker remains common.

The East German educational system was designed to endow children with a strong 'socialist personality' while enabling high maternal labor force participation. According to the Jugendgesetz der DDR of 1974, children should learn to honor and defend the traditions of the working class, to hold an anti-imperialistic attitude, to strengthen friendship with the Soviet Union, and to achieve a collective mindset. To achieve the goal of instilling socialist values in their subjects, the state sought to limit parents' influence on their children. In the words of Margot Honecker (the East German education minister from 1963 to 1989 and wife of the General Secretary of the Socialist Unity Party Erich Honecker), in East Germany "children receive political education already in Kindergarten, and the state deprives parents of influence over the upbringing of their children" (Honecker 1978). Even very young children under the age of three spent most of their time in state-run nurseries, followed by all-day kindergarten (ages 3–6) and the compulsory uniform polytechnic school until grade 10. Access to higher secondary education and university was restricted, determined mostly by the political orientation and engagement of children and their parents rather than by academic performance. In line with the goal of raising socialist citizens, all educational institutions, from nurseries onward, had to strictly follow uniform education plans issued by the Ministry of Education, leaving little room for individual modifications. Parents had no influence on school activities and were expected to raise their children in line with socialist ideology and to follow educators' instructions.[5]

[5]See Wilhems-Breunig (2013) for a detailed overview of the GDR's education system, including its educational concepts and ideological orientation.

2.3 The Impact of Reunification

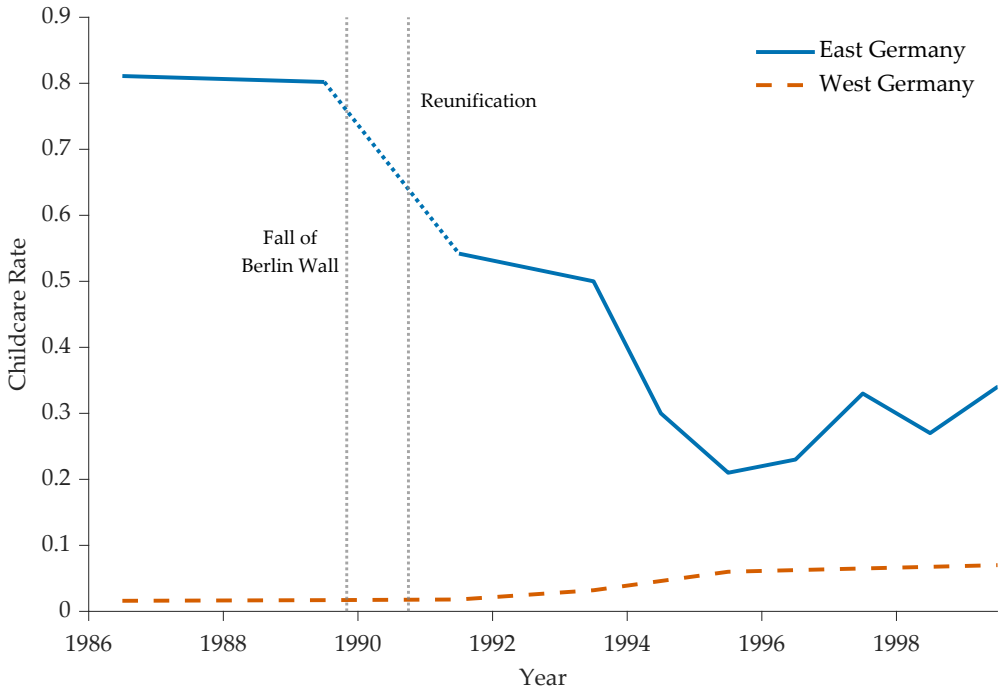

Figure 1: Percentage of children under 3 years enrolled in public childcare (Sources: Wippermann 2015; Hank, Tillmann, and Wagner 2001)

Reunification took the form of East Germany joining the Western state. As a result, in the West laws and institutions were largely unchanged. Given that West Germany also had a much larger population than East Germany (about 67 million versus 16 million in 1990), daily life for Westerners continued mostly as before. In the East, by contrast, reunification brought an immediate and pervasive shift to a new legal and economic system and new institutions. Some of the largest immediate changes concerned the upbringing of children. Socialist education and indoctrination were abandoned as curricula based on West German standards were adopted. In addition, there was a quick retreat from the previous system of universal childcare in East Germany. Figure 1 displays the share of children under age three enrolled in public childcare facilities in East and West Germany. Before reunification, this share was more than 80 percent in East Germany and less than 2 percent in West Germany. After reunification, the gap quickly narrowed as childcare centers in East Germany were shut down en masse. In 1991, the first full year after reunification, the share had already declined by 26 percentage points to just over 50 percent, falling further

to around 30 percent in 1994 and just over 20 percent in 1995. There were also sharp drops in the availability of kindergarten and after-school programs in East Germany. Approximately 95 percent of children aged 3–6 were enrolled in full-time kindergarten in East Germany shortly before reunification, compared to less than 20 percent in the West (Hank, Tillmann, and Wagner 2001). In East Germany, this share dropped to 80 percent in 1990 and fell further to about 50 percent by the late 1990s (Hank, Tillmann, and Wagner 2001). Among children aged 6–10, more than 80 percent were enrolled in after-school programs in East Germany shortly before reunification; in West Germany, this share was less than 5 percent (Wippermann 2015). In 1990, only 35 percent of primary-school children in East Germany attended after-school programs or were enrolled in all-day schools. By the late 1990s, the share had declined further to 25–30 percent (Hank, Tillmann, and Wagner 2001). The declining availability of childcare went hand-in-hand with a decline in women's labor force participation in East Germany. Before reunification, the female labor force participation rate in East Germany was close to 80 percent, with most women in full-time employment; in West Germany the rate was only 60 percent, with most women working part-time (Schenk 2003). After reunification, the labor force participation rate of East German women fell, and the East-West gap narrowed to just 5 percentage points within ten years (Deutsches Institut für Wirtschaftsforschung 2013).

In summary, while reunification brought few immediate changes to family life in the West, East Germans experienced a rapid shift in childrearing responsibility from state to family, alongside a curricular shift from state indoctrination to skills acquisition. At the same time, families experienced a profound transformation of society and the economic environment. The path to individual success and security differs fundamentally between a liberal democracy with a free-market system and a totalitarian state under central planning. Parents faced the challenge of determining which skills, attitudes, and preferences were conducive to success in this new world. To understand how these simultaneous changes may affect preference formation in the family, we turn to our theoretical model.

3 A Model of Preference Formation

We now describe a model of preference formation that captures channels for the influence of parents, the state, and the economic environment.

3.1 Setup and Channels of Transmission

We consider a population of families consisting of one parent and one child. Each parent is characterized by a genetic type $G \in \{0, 1\}$ and a phenotype $P \in \{0, 1\}$. In an application to risk-taking behavior, the phenotype corresponds to actual risk aversion (low or high) and the genotype to a genetic predisposition toward more risk-loving or more risk-averse behavior. We develop the main insights for the case of a single transmitted preference trait, and discuss extensions to multiple traits below.[6]

Our focus is on the determination of children's phenotype P_C and the resulting correlation between the preferences of parents and children. A child's phenotype emerges from an interaction of its genotype, a socialization effort by the state, and parental socialization. For ease of exposition, we model these three influences as successive stages, although our main results do not depend on this assumption.

The first stage of transmission is genetic transmission (GT). There is an exogenous probability p_{GT} that a child inherits the parent's genotype, where $0.5 < p_{\text{GT}} < 1$. The next stage is genetic expression (GE). A child assumes an initial phenotype $P_{C,\text{GE}}$ where the probability that this phenotype matches the child's genotype is given by the exogenous probability p_{GE}, where $0.5 < p_{\text{GE}} < 1$.[7]

In the next stage, the state intervenes. In a communist dictatorship, the state may have an interest in instilling certain preferences in its subjects, for example to minimize the likelihood of protest and rebellion. We assume (without loss of generality) that the state prefers the child to have phenotype $P_C = 0$. The ability of the state to implement this preference depends on two factors. The first is how much access the state has to the child; this depends on childcare arrangements, and in particular on how much time children spend in state institutions rather than with their families. Let t_{ST} denote the fraction of available time that children spend under state control, where $0 < t_{\text{ST}} < 1$. The state can also decide whether it wants to shape children's preferences at all, and if so, in what direction. We denote the child's phenotype after the state-indoctrination stage as $P_{C,\text{ST}}$. Let p_{ST} be the probability per unit of time

[6] Formal models of cultural transmission with a distinction of geno- and phenotypes originated with Cavalli-Sforza and Feldman (1973).

[7] We do not formally allow for epigenetics, although the modification of genetic expression through state and parental intervention could in principle be interpreted as epigenetic influences.

that indoctrination is successful, i.e., that a child with initial phenotype $P_{C,\text{GE}} = 1$ switches to phenotype $P_{C,\text{ST}} = 0$, where $0 < p_{\text{ST}} < 1$.

Accordingly, if the child's initial phenotype is $P_{C,\text{GE}} = 0$, the state will not attempt to change the phenotype and we have $P_{C,\text{ST}} = P_{C,\text{GE}} = 0$ for sure. If instead $P_{C,\text{GE}} = 1$, the phenotype after state indoctrination will be $P_{C,\text{ST}} = 0$ with probability $t_{\text{ST}}p_{\text{ST}}$ and $P_{C,\text{ST}} = 1$ with probability $1 - t_{\text{ST}}p_{\text{ST}}$.

In the third stage, the parent makes her own socialization effort. Parents have two separate motives for preference transmission. First, as in Bisin and Verdier (2001), Klasing (2014), and the cultural transmission literature more generally, parents have a paternalistic desire for their children to inherit their own values, that is, to end up with the same phenotype as the parent[8]. However, as in Doepke and Zilibotti (2017) and Doepke, Sorrenti, and Zilibotti (2019), parents also feel altruism toward the child and would like the child to do well in the world. If parents perceive that a different phenotype may give the child an advantage, the altruistic motive may override their inclination to transmit their own phenotype. Formally, the parent maximizes the following value function:

$$V(P, G, X, \gamma) = \max_{P_{\text{PS}} \in \{0,1\}} E\left\{-\gamma|P - P_C| + zV_C(P_C, X)\right\} \tag{1}$$

The state variables for the parent's decision problem are her own phenotype P and genotype G, a variable X that summarizes economic and institutional conditions that determine the returns to different phenotypes, and an individual characteristic $\gamma \geq 0$ that captures the strength of the paternalistic motive. The parent's only choice variable is P_{PS} (PS for parental socialization), the phenotype she attempts to transmit to the child. The expectation is over the realization of the child's phenotype P_C, which in turn depends on P_{PS}. The first term on the right-hand side captures the perceived disutility of a mismatch between the parent's and child's phenotype. There is heterogeneity across parents in the paternalistic desire γ to transmit their own values, captured by a distribution function $F(\gamma)$ with $F(0) = 0$ and $F(\bar{\gamma}) = 1$, where $\bar{\gamma} > 0$. The distribution of γ is independent of the parent's type and can be

[8] In Bisin and Verdier (2001) and much of the following literature, the strength of this paternalistic motive is endogenized via the concept of imperfect empathy, i.e., parents evaluate the actions of their children using their own utility function. Here, we treat this motive in a parametric way, while focusing on a separate fully altruistic motive.

envisioned as drawn from the same distribution at the beginning of each parent's life. z captures the weight on altruism, and $V_C(P_C, X)$ captures the perceived future utility of the child as a function of its phenotype P_C and aggregate conditions X. In our application, X captures the notion that when the economic and political systems switch, certain values and attitudes may carry higher rewards. For example, risk taking (say, as an entrepreneur) may have high potential rewards in a market economy, but little upside in a totalitarian society where stepping out of bounds may lead to severe punishment.

If the parent's own phenotype also maximizes the altruistic utility, $V_C(P, X) \geq V_C(\bar{P}, X)$ (with $\bar{P}$ denoting the opposite of the parent's type), the parent will always aim to transmit their own type, $P_{\text{PS}} = P$. Conversely, if the opposite type maximizes altruistic utility, there is a threshold for $\tilde{\gamma}$ in the desire to transmit one's preferences that makes the parent just indifferent between transmitting either value, where:

$$\tilde{\gamma} = z\left(V_C(\bar{P}, X) - V_C(P, X)\right) > 0.$$

Hence, for fraction $F(\tilde{\gamma})$ of these parents the altruistic motive dominates and they set $P_{\text{PS}} = \bar{P}$, while for the remaining fraction $1 - F(\tilde{\gamma})$ we have $P_{\text{PS}} = P$.

If the child already has the phenotype preferred by the parent after the state indoctrination stage, the parent will leave the child's phenotype unchanged. If the child has the opposite phenotype, the parent will attempt to instill their preferred phenotype. In this case, the child switches to the parent's preferred type with probability $t_{\text{PS}}p_{\text{PS}}$, where t_{PS} is the effective time the parent has available to socialize the child and p_{PS} is a parameter capturing the effectiveness of parental socialization. We have $0 < t_{\text{PS}} < 1$ and $0 < p_{\text{PS}} < 1$. We impose that:

$$t_{\text{PS}} = f(t_{\text{ST}})$$

where $f'(t_{\text{ST}}) < 0$, so that greater state indoctrination lowers the effective time that parents spend on preference transmission. In part, this reflects time constraints: when the children spend most of their time supervised by the state, there is less scope for parents to intervene. However, we do not impose that the parent's influence declines one-for-one with state intervention. Intuitively, parents may make a greater effort to counteract state influence when little time is available, and more generally parental

socialization may be subject to diminishing returns.

3.2 The Joint Distribution over Parents' and Children's Types

Our interest is in characterizing how the environment—in terms of state intervention t_{ST} and p_{ST} and economic conditions X—affects the relationship between parents' and children's phenotypes. We therefore consider how the overall distribution of types evolves in this model. Consider a population of parents whose type distribution is described by the matrix S, where element (i, j) denotes the fraction of parents with genotype $i \in \{0, 1\}$ and phenotype $j \in \{0, 1\}$. We assume that all entries of S are positive and that the parents' phenotype and genotype are positively correlated, which is equivalent to imposing $\det(S) > 0$. This assumption is consistent with the model, which implies a positive correlation between genotype and phenotype in each subsequent generation.

We now characterize the type distribution for the children's generation. We focus in particular on the joint distribution D of phenotypes for parents and children, which corresponds to the preference types that we can observe in the data.

We first construct a matrix D_{GT}, where element (i, j) denotes the share of children with genotype $i \in \{0, 1\}$ whose parent has phenotype $j \in \{0, 1\}$ after the genetic transmission stage. This distribution is given by:

$$D_{\text{GT}} = \Pi_{\text{GT}} S,$$

where:

$$\Pi_{\text{GT}} = \begin{bmatrix} p_{\text{GT}} & 1 - p_{\text{GT}} \\ 1 - p_{\text{GT}} & p_{\text{GT}} \end{bmatrix}.$$

The elements of Π_{GT} capture the probability p_{GT} of genetic transmission from parent to child. Next, the joint distribution D_{GE} over the initial phenotype of the children after the genetic expression stage and the phenotype of the parents is given by:

$$D_{\text{GE}} = \Pi_{\text{GE}} \cdot D_{\text{GT}} = \Pi_{\text{GE}} \cdot \Pi_{\text{GT}} \cdot S,$$

where:

$$\Pi_{\text{GE}} = \begin{bmatrix} p_{\text{GE}} & 1 - p_{\text{GE}} \\ 1 - p_{\text{GE}} & p_{\text{GE}} \end{bmatrix}.$$

The elements of Π_{GE} capture the probability p_{GE} of genetic expression, i.e., the probability that the child's initial phenotype matches the genotype.

Up to this point, transmission depends only on the parental type distribution and on fixed parameters characterizing genetic transmission and expression. The next step introduces state influence on preference transmission. We assume without loss of generality that the state pushes toward phenotype 0. We can write the joint distribution over children's and parents' phenotypes D_{ST} after state intervention as:

$$D_{\text{ST}} = \Pi_{\text{ST}} \cdot D_{\text{GE}},$$

where:

$$\Pi_{\text{ST}} = \begin{bmatrix} 1 & t_{\text{ST}} p_{\text{ST}} \\ 0 & 1 - t_{\text{ST}} p_{\text{ST}} \end{bmatrix}.$$

The first column reflects that if a child already has phenotype 0, the state does not intervene. The second column reflects that a fraction $t_{\text{ST}} p_{\text{ST}}$ of children with initial phenotype 1 are switched to phenotype 0 through state indoctrination.

Now we turn to the final stage: parental socialization. There are two cases, depending on which phenotype is more advantageous for the children. Consider first the case in which, from an altruistic perspective, parents prefer phenotype 1, i.e., maximizing the child's wellbeing requires pushing against the state's desired type 0. For parents who are of type $P = 1$, there is no tension between transmitting their own type and the altruistic motive. Hence, these parents will always aim to transmit $P_{\text{PS}} = 1$. If the child already has this phenotype, the parent leaves it intact; if the child currently has type 0, the parent socializes the child to type 1 with probability $t_{\text{PS}} p_{\text{PS}}$. For parents with phenotype $P = 0$, in contrast, there is a conflict between the altruistic motive and the desire to transmit one's own preferences. Fraction $F(\tilde{\gamma})$ of these parents will attempt to transmit $P_{\text{PS}} = 1$, whereas fraction $1 - F(\tilde{\gamma})$ aims to transmit $P_{\text{PS}} = 0$. The

final distribution of children's and parents' phenotypes is then given by:

$$D = \Pi_{1,\text{PS}} \cdot D_{\text{ST}} \cdot \begin{bmatrix} 1 & 0 \\ 0 & 0 \end{bmatrix} + \Pi_{2,\text{PS}} \cdot D_{\text{ST}} \cdot \begin{bmatrix} 0 & 0 \\ 0 & 1 \end{bmatrix}, \tag{2}$$

where:

$$\Pi_{1,\text{PS}} = \begin{bmatrix} 1 - F(\tilde{\gamma}) t_{\text{PS}} p_{\text{PS}} & (1 - F(\tilde{\gamma})) t_{\text{PS}} p_{\text{PS}} \\ F(\tilde{\gamma}) t_{\text{PS}} p_{\text{PS}} & 1 - (1 - F(\tilde{\gamma})) t_{\text{PS}} p_{\text{PS}} \end{bmatrix}, \quad \Pi_{2,\text{PS}} = \begin{bmatrix} 1 - t_{\text{PS}} p_{\text{PS}} & 0 \\ t_{\text{PS}} p_{\text{PS}} & 1 \end{bmatrix}.$$

In the alternative case where $P_C = 0$ is the advantageous phenotype for the children (i.e., the same trait preferred by the state), we have instead:

$$D = \tilde{\Pi}_{1,\text{PS}} \cdot D_{\text{ST}} \cdot \begin{bmatrix} 1 & 0 \\ 0 & 0 \end{bmatrix} + \tilde{\Pi}_{2,\text{PS}} \cdot D_{\text{ST}} \cdot \begin{bmatrix} 0 & 0 \\ 0 & 1 \end{bmatrix},$$

where:

$$\tilde{\Pi}_{1,\text{PS}} = \begin{bmatrix} 1 & t_{\text{PS}} p_{\text{PS}} \\ 0 & 1 - t_{\text{PS}} p_{\text{PS}} \end{bmatrix}, \quad \tilde{\Pi}_{2,\text{PS}} = \begin{bmatrix} 1 - (1 - F(\tilde{\gamma})) t_{\text{PS}} p_{\text{PS}} & F(\tilde{\gamma}) t_{\text{PS}} p_{\text{PS}} \\ (1 - F(\tilde{\gamma})) t_{\text{PS}} p_{\text{PS}} & 1 - F(\tilde{\gamma}) t_{\text{PS}} p_{\text{PS}} \end{bmatrix}.$$

3.3 Correlation in Preferences Across Generations

In the analysis above, we expressed the equilibrium joint distribution D of phenotypes for children and parents as a linear function of decisions and parameters. This allows us to characterize how the economic environment and state intervention affect the correlation in phenotypes across generations. The correlation between the phenotypes of parents and children is given by:

$$\text{Corr}(P, P_C) = \frac{\det(D)}{\sqrt{(D_{1,1} + D_{1,2})(D_{2,1} + D_{2,2})(D_{1,1} + D_{2,1})(D_{1,2} + D_{2,2})}} \tag{3}$$

Here the last two terms in the denominator of (3) denote the fractions of parents with phenotypes $P = 0$ and $P = 1$, respectively, which are fixed before transmission

takes place. We also consider regressions of the child's phenotype on the parent's phenotype. In a linear regression of the form:

$$P_C = \alpha + \beta P + \epsilon,$$

the slope coefficient is:

$$\beta = \frac{\mathrm{Cov}(P, P_C)}{\mathrm{Var}(P)} = \frac{\det(D)}{(D_{1,1} + D_{2,1})(D_{1,2} + D_{2,2})}. \tag{4}$$

The coefficient β is the increase in the probability of a child being type $P_C = 1$ when the parent is type $P = 1$ rather than $P = 0$. When $\beta = 0$, the parent's type has no predictive power over whether the children become type $P_C = 1$. We estimate an analogue of this regression coefficient in the empirical section below.

We now consider how the regression coefficient and the correlation between parental and children's phenotypes vary with state intervention and the state of the economy.

Proposition 1 (Impact of Genetic Transmission)**.** *If transmission is entirely due to genetic transmission, $p_{ST} = p_{PS} = 0$, then:*

- *There will be a positive correlation between the phenotypes of parent and child.*
- *A regression of the child's on the parent's phenotype will be independent of the political regime and economic conditions.*

The proofs for this and the following propositions are given in Appendix A.

The result follows from the assumption that a given geno- and phenotype is transmitted with probability greater than one-half at each stage. The result implies that if neither the state indoctrination nor the parental socialization channel is active, we should observe a positive parent-child correlation in phenotypes, but no differences in preference transmission between East and West Germany or before and after reunification. Next, we consider how transmission changes when the state also intervenes, in addition to genetic transmission.

Proposition 2 (Impact of State Indoctrination)**.** *If the state indoctrination channel is active $p_{ST} > 0$ but the parental socialization channel is not ($p_{PS} = 0$), then:*

- *There will be a positive correlation between the phenotypes of parent and child.*
- *An increase in state indoctrination t_{ST} will lower the coefficient β in a regression of the child's on the parent's phenotype.*

The intuition is that the state favors a particular phenotype independently of the parent's phenotype, which lowers the parent-child correlation that existed before state intervention. The correlation stays positive because the state succeeds with probability less than one, leaving some of the initial correlation intact. In the limit where the state is able to convert all children to the same trait, the correlation between parents and children would be zero.

Next, we consider parental socialization.

Proposition 3 (Impact of Parental Socialization)**.** *If all three transmission channels are active (genetic, state indoctrination, parental transmission), so that $p_{ST} > 0$ and $p_{PS} > 0$, then:*

- *There will be a positive correlation between the phenotypes of parent and child.*
- *A change in aggregate conditions X that raises the incentive to endow the child with a particular phenotype (i.e., $\tilde{\gamma}$ and $F(\tilde{\gamma})$ increase in response to the change) will lower the coefficient β in a regression of the child's on the parent's phenotype.*

Intuitively, when changes in aggregate conditions make a particular phenotype more advantageous, the altruistic motive becomes dominant for a larger fraction of parents, who now aim to instill a phenotype different from their own. This naturally lowers the parent-child correlation.

We can also consider how our results change if we relax assumptions on the order of state and parental influences, which in reality do not occur sequentially but overlap. For example, we could allow parents to move first, or model multiple periods of transmission with both state and parents acting in each stage. While changing the timing assumption would affect the ultimate distribution of phenotypes, our results regarding the role of state and parental transmission remain intact. This is because the direction in which each actor wants to push the child's phenotype is independent of the other actor's actions. Richer interactions would arise in a model that goes

beyond binary traits. For example, if a trait were continuous and the parent acted first, she might aim to 'overshoot' in transmitting her desired trait, anticipating that her influence might be blunted later by the state. Still, the basic considerations of the role of the economic environment described here would apply.

3.4 Multiple Traits and Multi-Generation Transmission

It is straightforward to extend the model to allow for the transmission of multiple traits, such as risk aversion, patience, and trust. Let $\boldsymbol{P}$ be a vector of N traits, each of which is binary with trait n satisfying $P^n \in \{0, 1\}$. The corresponding vector of genotypes is denoted $\boldsymbol{G}$. The transmission of each trait is as described above, with a separate initial joint distribution S^n of parental pheno- and genotypes and joint distributions D^n of children's and parents' phenotypes for each trait P^n. The shocks realized at each stage in a given family (genetic transmission and expression, state indoctrination, parental socialization) are independent across traits, so the transition matrices developed for the single-trait case continue to apply. We assume that the state's influence, described by t_{ST} and p_{ST}, is identical for all n (this can be generalized). In contrast, parents decide individually for each trait which phenotype P_{PS} to transmit. The cutoff $\tilde{\gamma}^n$ and the fraction of parents $F(\tilde{\gamma}^n)$ for whom the altruistic motive dominates can therefore vary with n.

The value function (1) extended to multiple traits is given by:

$$V(\boldsymbol{P}, \boldsymbol{G}, X, \gamma) = \max_{\boldsymbol{P}_{\text{PS}}(\boldsymbol{P}_{C,\text{ST}})} E\left\{-\gamma \sum_{n=1}^{N} |P^n - P_C^n| + zV_C(\boldsymbol{P}_C, X)\right\} \tag{5}$$

That is, the paternalistic motive of desiring the child to be similar to the parent applies to each trait; this aspect of utility is maximized if the child resembles the parent in every dimension. The altruistic utility depends on the joint impact of all child traits $\boldsymbol{P}_C$ on the child's utility, given aggregate conditions X. The parent's choice $\boldsymbol{P}_{\text{PS}}$ of which values to transmit is now conditional $\boldsymbol{P}_{C,\text{ST}}$ (the child's phenotype vector after state indoctrination), because this vector affects the probability distribution over $\boldsymbol{P}_C$ and hence the relative returns of different traits.

Given that the determination of each trait is as in the single-trait model, our previous results in Propositions 1 to 3 continue to apply. However, the presence of multiple

traits now opens up additional possibilities. A change in the economic environment X can now have a distinct impact on the transmission of different traits, depending on how X affects the returns to each trait. Moreover, traits may interact. For example, some traits (e.g., patience and diligence) may be highly complementary, with high value if both are present but low return if only one is. Such traits will tend to move together, both in their distribution across families and in their reaction to changes in the environment X.

The model can also be extended to a dynastic setting in which each child gives birth to a grandchild, and so on. If in each generation, the parent cares only about the child's felicity $V_C(\boldsymbol{P}_C, X)$ and not future descendants' utility, the analysis remains formally unchanged, but it becomes possible to study the long-run evolution of the distribution of phenotypes. Alternatively, we can consider a fully dynastic model where children enter their parents' utility through their true value function, which includes the utility that they derive from the grandchildren. If we assume that economic conditions X are unchanged over time and γ is constant within a dynasty, the value function can be written as:

$$V(\boldsymbol{P}, \boldsymbol{G}, X, \gamma) = \max_{\boldsymbol{P}_{\text{PS}}(\boldsymbol{P}_{C,\text{ST}})} E\left\{ U(\boldsymbol{P}, X) - \gamma \sum_{n=1}^{N} |P^n - P_C^n| + zV(\boldsymbol{P}_C, \boldsymbol{G}_C, X, \gamma) \right\}.$$

Here $U(\boldsymbol{P}, X)$ describes period utility as a function of phenotypes and the economic environment, analogously to $V_C(\boldsymbol{P}_C, X)$ in (5). Note that the children's value function is identical to the parent's (although the state variables can change across generations). The child's value function now also includes the vector of genotypes $\boldsymbol{G}_C$. While genotypes do not affect felicity, they do affect the distribution of phenotypes in the next generation, which the child cares about.

Our analysis above relied only on the existence of a cutoff for γ separating parents who prefer to pass on their own type from those who deviate to benefit their children. Such a cutoff still exists in the multi-generation extensions, so the same results apply. However, in the dynastic setting we can also study how a change in the environment affects transmission in the first exposed generation versus subsequent ones. To illustrate why the impact of an environmental change can differ across generations, consider again the case where state transmission is effective ($p_{\text{ST}} > 0$) but parental transmission is not ($p_{\text{PS}} = 0$). From (4), we can write the regression coefficient of

children's on parents' phenotype in the initial generation as:

$$\begin{aligned}\beta &= \frac{\det(D)}{(D_{1,1}+D_{2,1})(D_{1,2}+D_{2,2})} \\ &= \frac{\det(\Pi_{\text{ST}})\det(\Pi_{\text{GE}})\det(\Pi_{\text{GT}})\det(S)}{(S_{1,1}+S_{2,1})(S_{1,2}+S_{2,2})}.\end{aligned}$$

Here S describes the distribution over geno- and phenotypes in the parents' generation. The denominators are equal in both lines because the marginal distribution of parental phenotypes is identical in S and D. Now consider the same coefficient, but applied to transmission from the children's generation to the grandchildren's generation, denoted by β_C. We have:

$$\beta_C = \frac{\det(\Pi_{\text{ST}})\det(\Pi_{\text{GE}})\det(\Pi_{\text{GT}})\det(S_C)}{(S_{C\,1,1}+S_{C\,2,1})(S_{C\,1,2}+S_{C\,2,2})}.$$

Hence, if state intervention is unchanged across generations, any change in the parent-child phenotype association is entirely due to the change in the joint distribution of parental geno- and phenotypes from S to S_C.

In line with our application to Germany, consider a setting where state indoctrination is first introduced in the parent's generation. The distribution S of parental types is not affected by this change, as it was determined by previous generations' choices and reflects the steady state of an economy without state intervention. In the generation when state indoctrination starts, the correlation between children's genotypes and phenotypes decreases, for the same reasons as in Proposition 2. Intuitively, state intervention blunts the initial correlation that arises from genetic expression. We therefore have $\det(S_C) < \det(S)$, suggesting that the effect of state intervention is cumulative, resulting in an even flatter parent-child phenotype relationship in subsequent generations. However, the initial marginal distribution of types also matters, and more importantly, S may not represent a steady state; it may reflect other influences on preference transmission in earlier generations.

In our empirical application, we focus primarily on children whose parents were born around the time the Berlin Wall was constructed, when the new East German childcare and education system was still in its early stages. We therefore interpret the observed changes in transmission as corresponding to the first exposed generation

in our model. The fact that longer-run effects are likely to amplify the initial ones supports this approach.

3.5 Application to Transmission of Risk Tolerance and Trust

We illustrate our results with a stylized example designed to highlight the main forces at work in the model. Two preference traits are transmitted from parent to child: risk preference and trust. Trait $n = 1$ determines risk preference: $P_C^1 = 1$ corresponds to risk neutrality, whereas $P_C^1 = 0$ corresponds to risk aversion. Trait $n = 2$ determines trust, where $P_C^2 = 1$ denotes high trust and $P_C^2 = 0$ low trust. We use these two traits to illustrate how a trait's interaction with the economic environment shapes how parent-child transmission responds to shocks.

Children's adult income depends on an occupational choice between risky entrepreneurship and being a worker.[9] Workers receive a fixed wage of W; entrepreneurs succeed with probability $\chi \in (0, 1)$, earning X, or fail with probability $1 - \chi$, yielding zero. Risk-tolerant individuals with $P_C^1 = 1$ are risk neutral, with utility given by expected consumption. Hence, they choose to be entrepreneurs whenever $\chi X > W$. Risk-averse individuals with $P_C^1 = 0$ have logarithmic utility; if they choose to be workers, their utility is $\log(W) + \bar{u}$, where $\bar{u}$ controls the relative utility level under each trait. We set $\bar{u}$ such that if only the worker occupation is available, each risk preference trait yields the same utility. Risk averse-individuals never choose entrepreneurship, since the possibility of zero consumption would give utility of negative infinity.

We model trust in reduced form as a utility boost for high-trust individuals. Higher trust allows individuals to build stronger relationships, which has monetary and non-monetary payoffs for both workers and entrepreneurs.[10] Specifically, utility is multiplied by $(1 + \nu P_C^2)$, where $P_C^2 \in \{0, 1\}$ is the child's trust and $\nu > 0$ is a parameter measuring the return to trust.

[9] In terms of linking risk preferences and occupational choice, our illustrative model builds on Doepke and Zilibotti (2014) and Klasing (2014), who examine the role of endogenous preferences for entrepreneurship and growth.

[10] See Butler, Giuliano, and Guiso (2016) on the empirical relationship between trust and income, which is positive except for very high trust levels.

Given this setup, the child's utility is:

$$V_C(\boldsymbol{P}_C, X) = (1 + \nu P_C^2) \left(P_C^1 \max\{\chi X, W\} + (1 - P_C^1) (\log(W) + \bar{u}) \right).$$

The decision problem of the parent is:

$$V(\boldsymbol{P}, \boldsymbol{G}, X, \gamma) = \max_{\boldsymbol{P}_{\text{PS}}(\boldsymbol{P}_{C,\text{ST}})} E \left\{ -\gamma \sum_{n=1}^{2} |P^n - P_C^n| + z V_C(\boldsymbol{P}_C, X) \right\}.$$

We assume that the state aims to instill risk aversion and low trust in its citizens. Intuitively, such traits make it less likely that individuals push for regime change, as organizing resistance requires strong interpersonal bonds and is inherently risky.

In this model, there are multiple interactions between the transmission of risk preferences and trust. For example, a risk-averse parent attempts to transmit risk tolerance ($P_{\text{PS}}^1 = 1$) if

$$E \left\{ z(1 + \nu P_C^2) \max\{\chi X, W\} - (\log(W) + \bar{u}) \right\} > \gamma,$$

where the expectation is over the realization of P_C^2. If the return to risk tolerance is positive, it is increasing in the child's trust P_C^2. In other words, higher expected trust makes transmitting risk tolerance (and hence the option to become an entrepreneur) more attractive. Conversely, transmitting trust becomes more attractive if the parent expects the child to be risk tolerant. Despite this complementarity, environmental changes can have different impacts on the transmission of the two traits. In particular, a higher return to entrepreneurship X strongly increases the incentive to transmit risk tolerance (since only risk-tolerant entrepreneurs benefit from a high X) while the impact on the transmission of trust is more muted.

We now illustrate these effects with a computed example. The preference parameters are $\bar{u} = 1$, and $z = 0.5$, the technology parameters are $W = 1$, $\chi = 0.5$, and $\nu = 0.1$, and the parameters governing preference transmission are $p_{\text{ST}} = p_{\text{PS}} = 0.5$ and $p_{\text{GT}} = p_{\text{GE}} = 0.9$. The function $f(t_{\text{ST}})$ is given by $t_{\text{PS}} = f(t_{\text{ST}}) = 0.75 - 0.5 t_{\text{ST}}$ (meaning that parents retain some influence even if $t_{\text{ST}} = 1$), and γ has a uniform distribution on $[0, 1]$. Lastly, the initial distribution of parental geno- and phenotypes for both

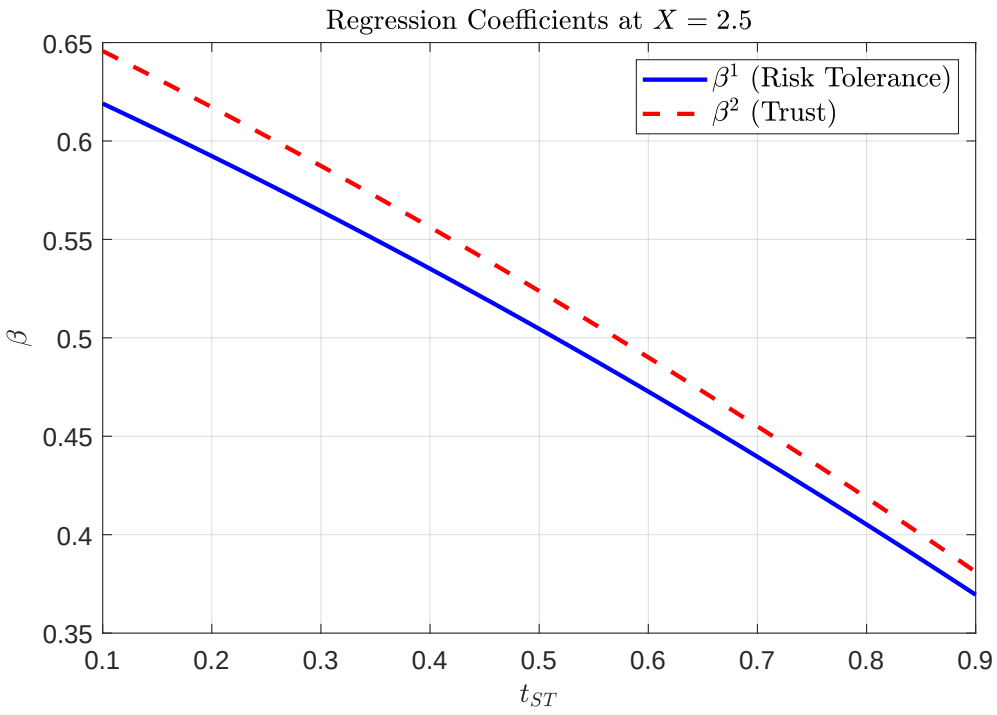

Figure 2: Coefficients in regressions of child's on parent's phenotype as a function of intensity of state indoctrination t_{ST}; return to entrepreurship fixed at $X = 2.5$

traits is given by:

$$S^1 = S^2 = \begin{bmatrix} 0.45 & 0.05 \\ 0.05 & 0.45 \end{bmatrix}.$$

This is the distribution of traits that would arise in the long run if there is only genetic transmission and neither state nor parents intervene. In addition, the two traits are uncorrelated among parents, meaning that each possible combination of phenotypes arises in one-quarter of parents. We also set $X > 2$, as otherwise entrepreneurship would never be chosen.

Figures 2 to 4 show how the transmission of traits depends on state indoctrination and the economic environment (details on the underlying computations and further results are provided in Appendix B). Figure 2 displays regression coefficients of the child's on the parent's phenotype for a range of levels of state indoctrination t_{ST}, holding the return to entrepreneurship fixed at $X = 2.5$.[11] The solid line corresponds to

[11]The full mapping of t_{ST} and X into regression coefficients is displayed in the form of heat maps

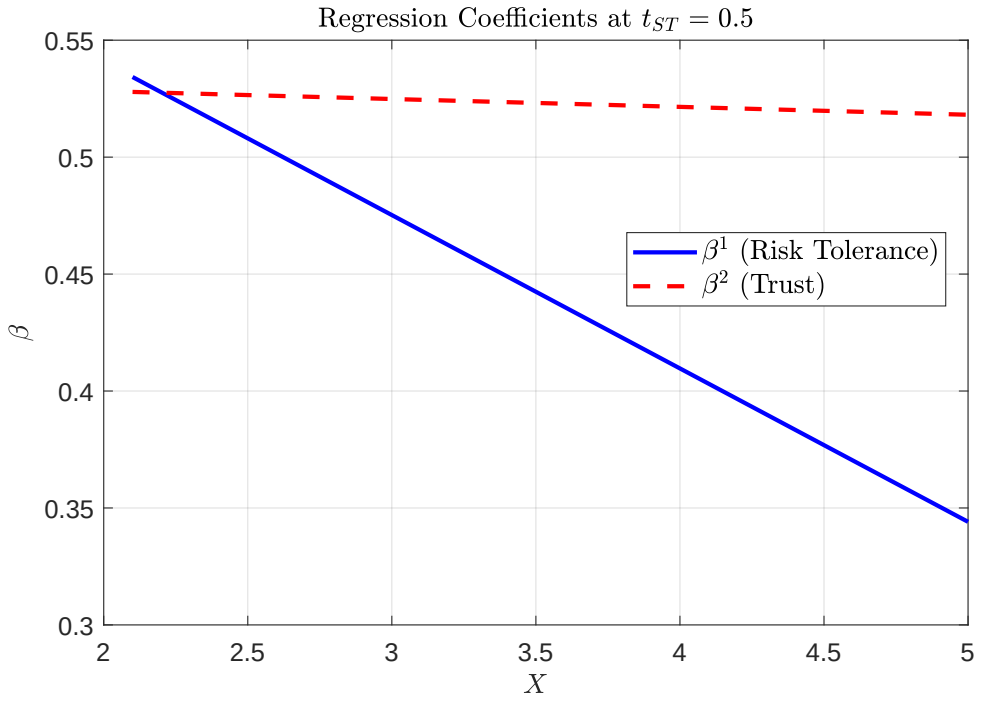

Figure 3: Coefficients in regressions of child's on parent's phenotype as a function of return to entrepreneurship X; state indoctrination fixed at $t_{\text{ST}} = 0.5$

risk tolerance and the dashed line to trust. In line with Proposition 2, the coefficients are decreasing in state indoctrination for both traits. The parent-child correlations decrease because state indoctrination directly lowers the correlations and also reduces the scope for parental socialization. A change in t_{ST} does not change parents' choice $\boldsymbol{P}_{\text{PS}}(\boldsymbol{P}_{C,\text{ST}})$ of which value to transmit, but makes parental transmission less effective by reducing $t_{\text{PS}} = f(t_{\text{ST}})$. Based on the figure, if we were to compare two economies that differ only in the degree of state indoctrination, we would expect a stronger correlation in traits between parents and children in the country with less indoctrination.

Figure 3 displays the same regression coefficients for different values of the return to entrepreneurship X, holding state indoctrination fixed at $t_{\text{ST}} = 0.5$. At low levels of X, the parent-child correlation is higher for risk tolerance than for trust. A rise in X increases the value of both traits for children, inducing more parents to transmit risk tolerance and trust even if these differ from their own type (i.e., higher $\tilde{\gamma}^n$). As spelled

in Appendix B.

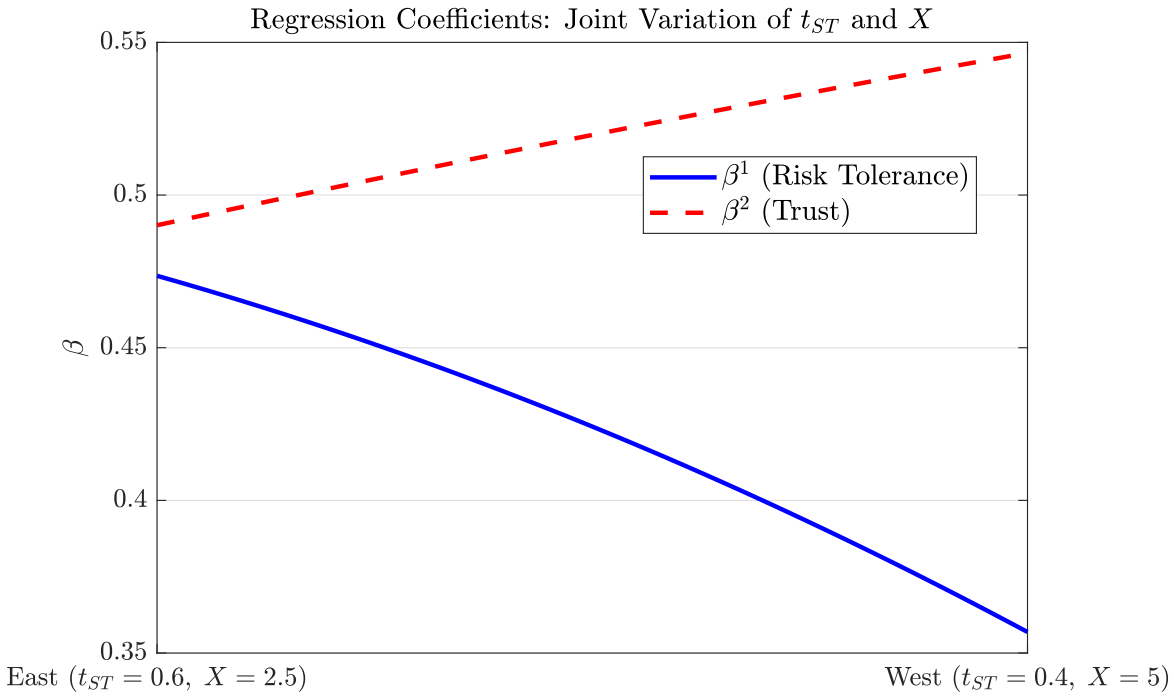

Figure 4: Coefficients in regressions of child's on parent's phenotype under joint variation from "East" regime of high state indoctrination and low return to entrepreneurship to "West" regime of low state indoctrination and high return to entrepreneurship

out by Proposition 3, this lowers the correlation between parents and children, and hence both transmission coefficients are decreasing in X. Quantitatively, however, the change in X has a much larger impact on the transmission of risk tolerance than of trust. This occurs because entrepreneurship and risk tolerance are closely connected; only risk-tolerant children choose entrepreneurship, and a rise in X increases the income of entrepreneurs while leaving workers' income unchanged. In contrast, while the return to trust does increase in X, this trait has similar value in both occupations. Hence, the relationship between X and the transmission of trust is rather flat.

We can now combine these findings to form hypotheses for our application to intergenerational preference transmission in East and West Germany. Through the lens of the model, East Germany is characterized by high state indoctrination and a low return to entrepreneurship, with the opposite conditions prevailing in the West. After reunification, state indoctrination t_{ST} quickly fell, removing the state's influence

on children's preferences and expanding the scope for parental socialization. At the same time, the sudden switch to a market economy made traits associated with success in that environment newly attractive. Given its close association with entrepreneurship and economic success, risk tolerance is the quintessential example of such a trait. We model this change as a rise in X and hence an increased return to risk tolerance.

How will the intergenerational transmission of preferences adjust if both changes occur at the same time? Figure 4 provides the answer. On the horizontal axis we jointly vary state indoctrination and the return to entrepreneurship from an "East" regime ($t_{\text{ST}} = 0.6$, $X = 2.5$) to the "West" regime ($t_{\text{ST}} = 0.4$, $X = 5$), with linear interpolation in between.

We observe that the transmission of risk tolerance and trust moves in opposite directions as the economy transitions from East to West. For risk tolerance, the parent-child correlation drops sharply. The rise in X makes entrepreneurship much more attractive, inducing even risk-averse parents to transmit risk tolerance, which lowers the parent-child correlation. More broadly, Eastern parents raising children just after reunification likely realized that the uncertain 'new world' their children were entering might require attitudes and values distinct from their own, increasing their desire to endow their children with the values conducive to success.

For trust, the parent-child correlation increases. While the rise in X does increase the return to trust, this effect is small. The dominant channel is the decline in state indoctrination, which raises correlations both by withdrawing state influence and by expanding the scope for parental socialization. We would expect a similar result for other preference traits whose returns do not differ markedly between a liberal market democracy and a socialist dictatorship.

Hence, parent-child correlations drop for traits with much higher returns in the 'new world' and increase for others. Of course, these qualitative findings depend on the chosen parameter values. Specifically, what matters most is the relative strength of the state indoctrination and parental socialization channels. If parents lack strong altruistic motives or parental influence is small (small p_{PS}), the endogenous response to changes in X plays a minor role in shaping children's preferences. The state indoctrination channel then dominates, and we would expect parent-child correlations to rise for all traits after reunification, in line with Proposition 2.

Alternatively, if only genetic transmission matters and neither state nor parents have much influence on children's preferences, changes in t_{ST} and X would have no effect, as spelled out in Proposition 1. Parent-child correlations would be the same in East and West, both before and after reunification.

The upshot is that the actual change in parent-child correlations around reunification is informative about the presence and relative strength of the three transmission channels in our model. In the next section, we let the data speak to this issue.

4 Evidence on the Formation and Transmission of Preferences: East and West Germany Before and After Reunification

Our empirical analysis assesses how parent-child correlations in preferences differed between East and West German families and how these correlations were affected by reunification. As outlined above, the extent of state intervention in childrearing was substantially higher in East than in West Germany prior to reunification. Reunification led not only to a convergence of the East German childrearing model toward the West German one, but also brought political freedoms, the transition to a market economy, and new economic opportunities. Hence, the reunification of Germany provides an ideal testing ground for examining model predictions regarding the role of the different transmission channels.

4.1 Data

Our empirical analysis requires a dataset that allows us to observe the preferences of children and their parents as well as the geographic origin (East versus West) of the family. The German Socio-Economic Panel (SOEP) meets these requirements. The SOEP is a representative household survey that has been conducted annually since 1984, with East German families included from 1990. A central feature of the SOEP is that once a household enters the survey, all members are followed even after leaving the originally sampled household. This feature allows us to observe both young adults (whom we refer to as children) and their parents who no longer live in the same household. Every year, each adult member of a SOEP household completes the personal survey, which asks detailed questions about the individual's preferences and values across a range of subjects. Importantly,

Table 1: Summary Statistics of SOEP Sample

	East	West
Respondents (families)	1,454	4,408
Observations	6,256	16,615
Female (percent)	48.5	48.2
Tertiary education (percent)	13.9	12.0
Employed (percent)	62.0	59.6
Married (percent)	9.8	8.3
Living with parents (percent)	57.0	70.3
Born 1977-84 (percent)	40.6	30.3
Born 1985-91 (percent)	45.8	41.6
Born 1992-99 (percent)	13.6	28.0

Notes: There are more observations than respondents because respondents can be observed in multiple waves.

interviews are conducted separately with each person to ensure that household members answer the questions independently. In our sample, each observation consists of a child-mother-father triplet (as in Dohmen et al. 2012), which we refer to as a family, observed at a particular point in time. We focus on children born after 1976, as we have few observations before that. Table 1 reports key characteristics of this sample.

We identify the geographic origin of each family based on the question: "Where did you live in 1989: East or West?" For children born before 1989, we code the family as originating from the East or West if the child and both parents lived there in 1989. For children born in or after 1989, the family is coded as East or West based on where both parents lived in 1989. For example, a child of two East German parents who moved to the West and had a child there in 1995 would still be classified as East, reflecting the parents' origin. Children with one East German and one West German parent are excluded from the analysis. We also exclude the very small number of children who lived in West Germany in 1989 but whose parents both lived in East Germany at that time, and families of non-German origin. Children for whom we

observe only one parent are also excluded.

We require that a child's preferences are observed in the same survey year as those of both parents. Our baseline measure of parental preferences is the average of the mother's and father's preferences. Since some children and their parents answered a given question in multiple waves, the same family may appear multiple times in our dataset. Accordingly, we cluster standard errors at the child level. Using data on preferences in adulthood is informative for parent-child transmission due to the relative stability of preferences during adulthood.[12]

The SOEP contains a variety of questions on preferences, attitudes, and values. For the main part of our analysis, we focus on risk preferences. Our baseline measure is based on a question asking respondents about their general willingness to take risks. This question has been asked most frequently in the survey, giving us a large sample size, and has been validated in experimental studies.[13] In Section 4.5, we also consider other preference traits such as patience and trust. Appendix C.1 provides more details on how we measure these preferences.

4.2 Estimation Strategy

Our empirical strategy rests on comparing parent-child correlations in the East and West, before and after reunification. Our main regression equation is:

$$\begin{aligned} Y_{ist} = {} & \alpha + \gamma_1 \,\text{Pre}_i + \gamma_2 \,\text{East}_i \cdot \text{Pre}_i + \gamma_3 \,\text{East}_i \cdot \text{Post}_i \\ & + \beta_1 \,\text{Pre}_i \cdot Y^P_{ist} \cdot + \beta_2 \,\text{Post}_i \cdot Y^P_{ist} \cdot + \beta_3 \,\text{East}_i \cdot \text{Pre}_i \cdot Y^P_{ist} \cdot + \beta_4 \,\text{East}_i \cdot \text{Post}_i \cdot Y^P_{ist} \cdot \\ & + X'_{ist}\phi + X^{P\prime}_{ist}\phi^P + \tau_{st} + \varepsilon_{ist}. \end{aligned}$$

The left-hand side variable Y_{ist} is the preference of child i living in state (Bundesland) s in survey year t. Y^P_{ist} is the corresponding parental preference. East_i is a dummy variable indicating whether the child's family is from East Germany. Pre_i is a dummy variable indicating whether the child was born before 1985. Post_i is a dummy variable

[12] Schildberg-Hörisch (2018) considers specifically the stability of risk preferences and argues that even though there is some systematic variation over time (e.g. age effects), there is a high rank-order stability, which is supportive of our analysis of parent-child correlations. Reassuringly, our results are robust if we use only the first available observation for each family (see Appendix D.1), which suggests that variation in preferences during adulthood is not a major quantitative issue.

[13] Dohmen et al. (2011) show that self-reported risk preferences, measured in the same way as in SOEP, are highly predictive of actual risky choices people make in experiments.

indicating whether the child was born in or after 1985. The choice of 1985 as the cutoff year is motivated by the fact that economic preferences are formed primarily during childhood and remain largely stable thereafter.[14] Since the reunification period spans 1989 and 1990, children born before 1985 spent at least some of their formative years under the pre-reunification regime. In contrast, those born after 1985 spent their formative years primarily in reunified Germany and were therefore exposed to substantially less state influence (children born in 1985 were 3–4 years old at the fall of the Berlin Wall). τ_{st} denotes state-year fixed effects. X_{ist} and X_{ist}^{P} denote controls for individual characteristics of children and their parents. In all regressions, we control for children's gender, age, education, household income, marital status, and employment status, as well as parental age, education, and household income.

The coefficient γ_1 captures the level difference in preferences between children born before versus after 1985 in West Germany. The coefficients γ_2 and γ_3 capture the level differences in preferences between children from East and West Germany born before versus after 1985. The coefficients β_1 and β_2 capture the strength of parent-child correlations for children from West Germany born before and after 1985. The coefficients β_3 and β_4 capture the difference in parent-child correlations between children from the East and from the West, born before and after 1985.

As we are interested in the strength of intergenerational preference transmission in East and West German families before and after reunification, our primary coefficients of interest are β_1, β_2, β_3, and β_4. The estimates for these parameters are informative for the transmission channels in our theoretical model. For example, if preference transmission from parents to children was entirely genetic, as analyzed in Proposition 1, we would expect a positive and constant parent-child correlation ($\beta_1 = \beta_2 > 0$) and no East-West differences either before or after reunification ($\beta_3 = \beta_4 = 0$). Non-zero estimates for β_3 or β_4 would indicate East-West differences in transmission, and a change in transmission in the East relative to the West after reunification would appear as a difference between β_3 and β_4. More specifically, β_3<0 would indicate that before reunification, parent-child correlations were weaker in East German families than in the West. Such a finding would support the state indoctrination channel, as extensive state involvement in children's upbringing in the

[14] Breitkopf et al. (2025) find that for patience, the most sensitive period for preference formation is ages 7–8, whereas prosociality remains malleable until about age 11.

East would lower parent-child correlations (Proposition 2). If the state indoctrination channel is dominant, we would also expect that $\beta_4 = 0$: parent-child correlations in the East should rise and become indistinguishable from those in the West once the state withdraws and family transmission becomes paramount. Yet another pattern emerges if the altruistic socialization channel is dominant, as in Proposition 3. Here the disruption of reunification, which brought both heightened uncertainty and new opportunities, would induce parents to instill preferences they deem beneficial in the new environment. Given that such preferences may differ from the parents' own, this lowers parent-child correlations. In this scenario, we would expect $\beta_4 < \beta_3$ and $\beta_4 < 0$: after reunification East German children would show weaker parent-child correlations than both earlier cohorts in the East and West German children born at the same time. We now show that this last scenario best matches the data for risk preferences.

4.3 The Impact of Reunification on the Transmission of Risk Preferences

Before turning to regression estimates, we illustrate the changing parent-child correlations in risk tolerance for East and West German families using binned scatter plots. These are displayed in Figure 5. For both East and West, red circles correspond to children born before 1985 and blue circles to children born in or after 1985. Each panel also includes a regression line. Parents' and children's risk tolerance is expressed relative to the mean in each group.

Figure 5 shows that among East German families, the parent-child correlation in risk tolerance is weaker for children born after 1985 than for those born before. Among West German families, by contrast, this correlation is slightly stronger for children born after 1985. Overall, the figures indicate that the parent-child correlation in risk preferences declined over time among East German families and remained fairly stable for West Germans. Of course, some of these changes may reflect a changing distribution of individual characteristics that the scatter plots do not control for. We therefore turn to regression results.

Table 2 examines the parent-child correlations in risk preferences more systematically. The dependent variable is the risk preference of children. All regressions control for state-survey year fixed effects as well as an extensive set of individual and parental

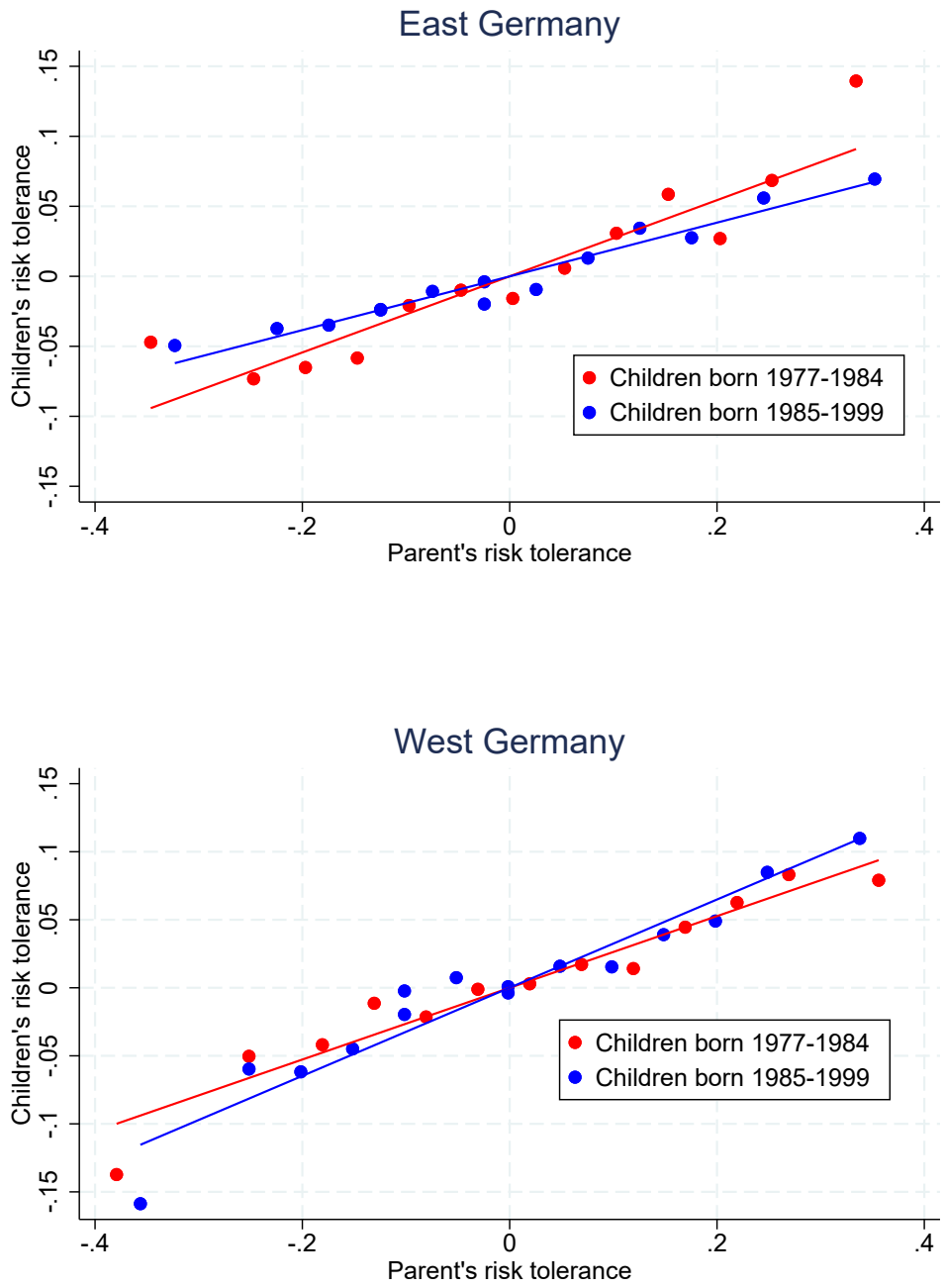

Figure 5: Binned scatter of parents' versus children's risk tolerance, East and West Germany, children born before and after 1985

controls.[15]

Column 1 reports the overall correlation between children's and parents' risk preferences without distinguishing by geographic origin or birth cohort. We see that parents' risk preferences are strongly positively correlated with those of their children.

Column 2 tests whether the parent-child correlation differs between East and West German families, without distinguishing between pre- and post-reunification periods. Children from East Germany appear more risk tolerant on average, but the parent-child correlation is weaker for East German families.[16]

Column 3, our preferred specification, examines how the transmission of risk preferences in the family differs between cohorts born before and after 1985. The regression results confirm the basic pattern already visible in Figure 5. The parent-child correlation is similar for East and West German children born before 1985. After 1985, there is little change in transmission in West German families, whereas East German families show a significant decline in the parent-child correlation. The decline is quantitatively large: the association between the preferences of parents and children falls by more than a third, indicating that the shock of reunification has a major impact on preference transmission in the family.[17]

Column 4 distinguishes further between children born between 1985 and 1989, just before reunification, and those born in or after 1990. The parent-child correlation for East German children born in the interim period 1985–1989 is similar to that of East German children born after 1989, and both are lower than the corresponding correlations for West German children born around the same time. This confirms

[15]Education is measured on a scale from 1 to 6 corresponding to the six levels in the International Standard Classification of Education (ISCED) system. If a child's educational level is not observed, we code their education level as zero. To account for such missing data, we include in addition a dummy variable indicating whether the respondent's educational attainment is missing. For marital status, we consider whether a person is married or not. To capture the employment status, we include two dummy variables, one capturing whether a person is working and one capturing whether a person is unemployed. Parental age, education, and household income are measured as the averages of these variables for the mother and father.

[16]The higher level of risk tolerance of East Germans is consistent with the evidence reported in Heineck and Süssmuth (2013).

[17]The overall association between parents' and children's risk tolerance in the East is given by $\beta_1 + \beta_3 = 0.23$ before 1985, and by $\beta_2 + \beta_4 = 0.16$ after.

Table 2: Intergenerational Transmission of Risk Preferences

Dependent Variable:	Risk preference of children born 1977-99			
Parental attitudes	0.262***	0.286***		
	(0.01)	(0.02)		
Parental attitudes x East		-0.099***		
		(0.03)		
Parental attitudes, pre 1985			0.252***	0.252***
			(0.03)	(0.03)
Parental attitudes, post 1985			0.302***	0.325***
			(0.02)	(0.03)
Parental attitudes, post 1990				-0.039
				(0.04)
Parental attitudes x East, pre 1985			-0.020	-0.022
			(0.05)	(0.05)
Parental attitudes x East, post 1985			-0.143***	-0.184***
			(0.04)	(0.05)
Parental attitudes x East, post 1990				0.073
				(0.07)
East		0.058***		
		(0.02)		
pre 1985 x East			0.028	0.029
			(0.03)	(0.03)
post 1985 x East			0.076***	0.090***
			(0.02)	(0.03)
post 1990 x East				-0.022
				(0.04)
Observations	22,871	22,871	22,871	22,871
R-squared	0.12	0.11	0.11	0.11

Notes: All regressions control for state-survey year fixed effects, demographic controls of the children and parents, and period dummies (post-1985, post-1990). Standard errors clustered at the individual level are reported in parentheses. *** p<0.01, ** p<0.05, * p<0.1

that 1985 is the appropriate cutoff: children were affected by the regime change as long as they were no older than 4 at the fall of the Berlin Wall.

Our empirical findings are consistent with an important role for the altruistic socialization channel. This is the only channel consistent with a substantial drop in parent-child correlations at a time when the state is withdrawing from indoctrination and childcare. In contrast, if the state indoctrination channel was dominant, we would expect to observe the opposite pattern of an increase in parent-child correlations once the state takes a step back. More generally, the fact that reunification has a large impact on preference transmission at all indicates that preferences are shaped by much more than genetics.

4.4 Mechanisms and Additional Checks

Our interpretation of the lower parent-child correlation in risk preferences among East Germans whose children were born shortly before or after reunification is that the transition to a market economy encouraged more parents to instill risk tolerance in their children, as this was likely to be a useful trait in the new economic environment. While our illustrative model focuses on returns to entrepreneurship, parents may well have perceived risk tolerance to be helpful more broadly; for example, by making children more willing to relocate or change jobs to avoid unemployment or advance their careers. But there are alternative explanations, not accounted for by our theoretical model, that could also explain declining parent-child correlations. In this section, we conduct a number of checks to probe the validity of these alternatives. These are reported in Table 3.

A first plausible alternative explanation is that children adopted greater risk tolerance on their own, for example through interaction with West Germans or simply by observing the new way of life, rather than through active parental socialization. If this were driving our results, we would expect the parent-child correlation to be lower among East German families whose children migrated to West Germany after reunification and were consequently more exposed to the West German environment. To test this, we distinguish between East German children who at the time of the survey lived in West Germany and those still living in the former East Germany. Column 1 shows results for families where children stayed in the East, and column 2 for families whose children moved to the West. The patterns in the parent-child

Table 3: Role of Education, Parental Involvement, and Unemployment Shocks

Dependent Variable:	Risk preference of children born 1977-1999							
	East in East	East in West	Parents' education < median	Parents' education > median	Parents' involvement < median	Parents' involvement > median	Parents unemployed	Parents not unemployed
Parental attitudes, pre 1985	0.252***	0.254***	0.230***	0.287***	0.142	0.278***	0.187	0.234***
	(0.03)	(0.03)	(0.04)	(0.05)	(0.10)	(0.10)	(0.12)	(0.05)
Parental attitudes, post 1985	0.300***	0.302***	0.327***	0.267***	0.214***	0.377***	0.245***	0.373***
	(0.02)	(0.02)	(0.03)	(0.03)	(0.03)	(0.03)	(0.06)	(0.04)
Parental attitudes x East, pre 1985	-0.029	0.014	0.053	-0.099	0.195	-0.056	-0.064	-0.075
	(0.06)	(0.07)	(0.07)	(0.07)	(0.14)	(0.20)	(0.14)	(0.10)
Parental attitudes x East, post 1985	-0.128***	-0.134	-0.079	-0.189***	-0.047	-0.230***	-0.064	-0.285***
	(0.04)	(0.11)	(0.05)	(0.05)	(0.06)	(0.06)	(0.09)	(0.08)
Observations	21,534	17,484	11,576	11,295	6,568	6,592	2,791	6,112
R-squared	0.11	0.08	0.08	0.08	0.09	0.08	0.15	0.14

Notes: All regressions control for state-year fixed effects, demographic controls of the children and parents, a dummy variable for the post-1985 period, a dummy variable indicating East German families as well as the interaction between these two dummy variables. Standard errors clustered at the individual level are reported in parentheses. *** p<0.01, ** p<0.05, * p<0.1

correlations are similar in the two cases and statistically indistinguishable. In each case, the parent-child correlation in risk preferences is lower among East German children born after 1985 than among West German children born around the same time while for earlier born children the parent-child correlations are similar. This indicates that migration and direct exposure to a new environment are unlikely to be driving our results.

Another possibility is that the economic disruption of reunification in East Germany had a direct impact on preference transmission. The abrupt introduction of the free market system resulted in severe economic hardship for East Germans. After decades of employment security under the communist regime, unemployment increased sharply, and many individuals who formerly held well-paid and prestigious jobs had to hop from one temporary job to another or undergo retraining (Goedicke 2006). The upheaval of people's work lives and migration of many East Germans to regions with better economic prospects also severely damaged social networks. In light of this, another potential explanation is that, facing post-reunification economic and social turmoil, parents raising young children had little time and energy to engage with them. Conversely, children witnessing their parents' struggles may have become less receptive to their influence.

We examine this alternative explanation by splitting the sample by parents' educational attainment and level of parental involvement in childrearing.[18] Parents with lower educational attainment were at higher risk of experiencing hardship after reunification, which may have resulted in less involvement in their children's upbringing. However, columns 3 to 6 show that the lower parent-child correlation in the East among children born after 1985 is only observed among parents with above-median educational attainment and above-median involvement in childrearing. These results suggest that the relative decline in East German parent-child correlations is not due to struggling parents withdrawing from their children. In-

[18]The level of parental involvement is measured via the average across thirteen variables in the SOEP survey capturing activities such as whether parents talk and ask their children about their experiences and problems, involve them in family decisions, the extent to which parents show affection toward their children, help them with homework, or whether parents regularly attend teacher-parent meetings at school. The underlying questions were only asked in more recent survey rounds, hence the sample only includes children born after 1981. Given the quite different distributions of parental involvement among East and West Germans, we use region-specific medians when splitting the sample based on parental involvement; for parental education we use the global median.

stead, the fact that the decline is driven by highly involved and educated parents supports the altruistic socialization mechanism.[19]

To test more directly for the role of economic hardship, in columns 7 and 8 we split the sample by whether at least one parent was unemployed at some point between 1990 and 1995, the key transition period. This can only be done for a small subsample, as this information is only available for children whose parents were already in the survey during that period. Nevertheless, the patterns are in line with our previous findings: the relative reduction in the parent-child correlation among East German children born after 1985 is only observed among families that did not experience unemployment in the early 1990s.[20]

These results contradict the alternative explanation of East German parents adopting a more permissive or uninvolved parenting style as a result of the economic and social turmoil they experienced during reunification. Yet the reported patterns are consistent with our hypothesized mechanism: confronted with massive economic and political changes, East German parents actively instilled economic preferences they deemed useful in the new environment, with highly educated and more involved parents being more successful.

In Appendix D.1, we discuss a series of additional robustness checks, including controlling for religion and individual characteristics that can be correlated with preferences, allowing for cohort fixed effects, family fixed effects, excluding Berlin, and only using the first observation on preferences for each parent-child pair. In all cases, our main findings remain intact. In Appendices D.4 and D.5, we provide additional results that separate out transmission from mothers and fathers and that allow for differential transmission to sons versus daughters. Here we find no significant differences in transmission depending on the gender of the child, but on the parental side mothers turn out to matter more than fathers, which is consistent with the view that socialization in the family (where mothers play a central role) is crucial.

[19]The patterns for West German families are in line with Alan et al. (2017) and Zumbuehl, Dohmen, and Pfann (2021): Parents who are more involved in the upbringing of their children have a stronger influence on their children, resulting in a higher parent-child correlation in risk preferences. Relatedly, Kosse et al. (2020) document that parents with higher levels of education engage in more intensive social interactions with their children.

[20]Splitting the sample based on whether the father was unemployed (rather than any of the two parents) yields similar results.

Table 4: Intergenerational Transmission of Trust, Patience, and Reciprocity

Dependent Variable:	Trust	Patience	Negative reciprocity	Positive reciprocity
Parents, pre 85	0.350***	0.218***	0.292***	0.222***
	(0.03)	(0.06)	(0.05)	(0.05)
Parents, post 85	0.353***	0.161***	0.381***	0.275***
	(0.02)	(0.04)	(0.03)	(0.03)
Parents x East, pre 85	-0.109**	-0.232**	0.092	-0.062
	(0.05)	(0.10)	(0.09)	(0.10)
Parents x East, post 85	0.015	-0.013	-0.095	0.108*
	(0.05)	(0.07)	(0.06)	(0.06)
Observations	6,015	3,627	3,627	3,626
R-squared	0.15	0.08	0.14	0.14

Notes: All regressions control for state-year fixed effects, demographic controls of the children and parents, a dummy variable for the post-1985 period, a dummy variable indicating East German families as well as the interaction between these two dummy variables. Standard errors clustered at the individual level are reported in parentheses. *** p<0.01, ** p<0.05, * p<0.1

4.5 Results for the Transmission of Other Economic Preferences

The SOEP also contains information on the other main dimensions of economic preferences: trust, patience, negative reciprocity, and positive reciprocity. These questions were included in only a few survey waves, leading to smaller sample sizes. Nevertheless, interesting findings emerge. Table 4 presents regression results for these preferences using our preferred specification. The corresponding binned scatter plots are shown in Appendix D.2 of the appendix.[21]

As with risk tolerance, the results in Table 4 reveal strong parent-child correlations for all preference traits. However, for trust and patience, the impact of German separation and reunification is strikingly different from the case of risk tolerance. Before 1985, parent-child correlations were much lower in East German families for both trust and patience. After 1985, parent-child correlations rise in the East

[21] In the appendix, we also present results for a large number of other attitudes we can observe in the SOEP but that are less related economic decision making.

and become indistinguishable from those in the West. In other words, the pattern for trust and patience is exactly what we would expect if the state indoctrination channel plays a dominant role, as in Proposition 2. Specifically, if parents focus on reproducing their own preferences, parent-child correlations are higher when parents are more involved in their children's upbringing. In an environment where children spend most of their time in state-run childcare facilities, as was the case for pre-1985 cohorts in East Germany, parent-child correlations would be low. Correlations will be higher when parents bear primary responsibility for childrearing, as in West Germany and in East Germany for cohorts affected by reunification. The parent-child correlations for positive reciprocity are also consistent with the state indoctrination channel playing a dominant role. If reproducing their own preferences matters more to East German parents than to West German parents, the parent-child correlation for children born before 1985 may be indistinguishable from West German correlations because parental socialization efforts work against state indoctrination. Consequently, when the state steps back and parents have more influence on their children, East German children will be more strongly correlated with their parents than West German children.

Overall, our results support both the state indoctrination and the altruistic socialization channel. Our model implies that if the return to a specific preference trait is largely invariant with respect to economic and institutional conditions, the state indoctrination channel will dominate and parent-child correlations will be stronger with less state involvement. Our results suggest that trust falls into this category (just as in the illustrative model in Section 3.5), as do patience and positive reciprocity. In the appendix, we show that a similar pattern arises for non-economic attitudes such as views on fairness and the role of the family, further supporting the view that the relative extent of state and family involvement matters for preference transmission when the stakes are low. Yet our model also implies that parents deviate from simply reproducing their own preferences if they perceive that children's welfare depends on a different set of attitudes. As in the model of Section 3.5, we believe that risk tolerance at a time of major institutional disruption combined with new economic opportunities is just such a high-return attitude. And indeed, here our empirical results strongly support the altruistic socialization channel, suggesting that parents deliberately instill new values when the times call for it.

5 Conclusions

Theories of preference formation have identified several channels through which preferences may be transmitted from parents to children. Parental preferences may be passed on through shared genes, children may imitate their parents, or parents may actively instill particular values and tastes in their children. Preference transmission is also shaped by other factors, such as children's interactions with other members of society and their exposure to role models at school or in the media. All such theories are consistent with the strong parent-child correlation in preferences that has been documented across a range of domains (Dohmen et al. 2012). However, the relative importance of the different transmission channels is not well understood.

In this paper, we present a model of preference formation that captures the interplay of three main transmission channels: genetic transmission, state influence, and active parental socialization. We show that the relative importance of each channel determines how preference transmission responds to large changes in institutions and the economic environment. We confront these predictions with evidence from the natural experiment of Germany's reunification. For East German parents, reunification brought a radical change in the childcare and education system, from the East German model of all-day institutional care and state indoctrination to the West German norm of half-day schooling combined with family-based care. Likewise, the economic transition from state-led socialism to a market economy opened up new opportunities such as entrepreneurship, while also disrupting daily life and exposing many individuals to shocks such as unemployment and the sudden obsolescence of previously valuable skills.

Our empirical findings show that the shock of reunification brought sharp changes in preference transmission from parents to children. For risk preferences, parent-child correlations remained roughly constant in West Germany but were much lower for East German children born after 1985 than for those born earlier. This implies that the altruistic socialization channel is a key driver of preference transmission. Our interpretation is that parents perceived risk tolerance as a key attribute that would allow their children to succeed in the new world that awaited them. As the economic environment changed, East German parents began instilling more risk tolerance in their children, driving down the parent-child correlation in risk preferences. This interpretation is supported by the finding that the changes in

parent-child correlations are particularly stark among families where parents were highly involved in their children's upbringing. For other preference traits such as patience and trust, we find that parent-child correlations rose in East Germany after reunification. Our model predicts this pattern for traits that are equally valuable before and after reunification. The dominant force is then the withdrawal of the state from childrearing, which leaves more room for parents to reproduce their own preferences.

The wider research agenda this paper contributes to is to characterize the deeper causes of the variation in preferences documented by Falk et al. (2018) and other authors. Our results strongly support the notion that preference transmission is an active process shaped by institutions and economic conditions. There is tremendous cross-country variation in the same institutions and economic conditions that were transformed by reunification in Germany. Hence, models of the kind developed here might account for a significant part of the global variation in preferences across countries and social groups. This provides a promising area for future research on the causes and consequences of variation in preferences.

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A Proofs for Propositions

Proof of Proposition 1: In (3), the denominator is always positive, so that the sign of the correlation only depends on $\det(D)$. If $p_{\text{ST}} = p_{\text{PS}} = 0$, we have:

$$\Pi_{\text{ST}} = \Pi_{1,\text{PS}} = \Pi_{2,\text{PS}} = \tilde{\Pi}_{1,\text{PS}} = \tilde{\Pi}_{2,\text{PS}} = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}.$$

We then have $D = D_{\text{GE}} = \Pi_{\text{GE}}\Pi_{\text{GT}}S$, and therefore:

$$\det(D) = \det(\Pi_{\text{GE}}\Pi_{\text{GT}}S) = \det(\Pi_{\text{GE}})\det(\Pi_{\text{GT}})\det(S).$$

Since we assume that geno- and phenotype are positively correlated in S and $p_{\text{GT}}, p_{\text{GE}} > 0.5$, each of the determinants is positive and hence $\det(D) > 0$. We therefore have a positive correlation between the phenotype of parent and child. Moreover, neither t_{ST} nor X enters the correlation; hence changes in the political regime or economic environment do not affect transmission. Likewise, the regression coefficient (4) depends only on D and on the marginal distribution of P_C, neither of which depends on t_{ST} or X if $p_{\text{ST}} = p_{\text{PS}} = 0$. □

Proof of Proposition 2: The distribution of phenotypes is now given by:

$$D = D_{\text{ST}} = \Pi_{\text{ST}}\Pi_{\text{GE}}\Pi_{\text{GT}}S = \Pi_{\text{ST}}D_{\text{GE}}.$$

We have:

$$\det(D) = \det(\Pi_{\text{ST}})\det(D_{\text{GE}}).$$

We have already shown that $\det(D_{\text{GE}}) > 0$; we also have $\det(\Pi_{\text{ST}}) = 1 - t_{\text{ST}}p_{\text{ST}} > 0$, where the inequality follows because both $0 < t_{\text{ST}} < 1$ and $0 < p_{\text{ST}} < 1$. Hence, the correlation between the phenotypes of parents and child is positive.

Now consider an increase in t_{ST}. We will first look at correlations. From (3), the correlation coefficient is given by:

$$\text{Corr}(P, P_C) = \frac{\det(D_{\text{ST}})}{\sqrt{(D_{1,1} + D_{1,2})(D_{2,1} + D_{2,2})(D_{1,1} + D_{2,1})(D_{1,2} + D_{2,2})}}$$

$$= \frac{\det(\Pi_{\text{ST}})\det(D_{\text{GE}})}{\sqrt{(D_{1,1}+D_{1,2})(D_{2,1}+D_{2,2})(D_{1,1}+D_{2,1})(D_{1,2}+D_{2,2})}}$$
$$= \frac{\det(\Pi_{\text{ST}})}{\sqrt{(D_{1,1}+D_{1,2})(D_{2,1}+D_{2,2})}} \times \text{const}$$

where the last term is a constant that does not depend on t_{ST}. We can write the matrix $D = D_{\text{ST}}$ as:

$$\begin{aligned} D &= \Pi_{\text{ST}} \cdot D_{\text{GE}} \\ &= \begin{bmatrix} 1 & t_{\text{ST}}p_{\text{ST}} \\ 0 & 1 - t_{\text{ST}}p_{\text{ST}} \end{bmatrix} \cdot D_{\text{GE}} \\ &= \begin{bmatrix} D_{\text{GE1},1} + t_{\text{ST}}p_{\text{ST}}D_{\text{GE2},1} & D_{\text{GE1},2} + t_{\text{ST}}p_{\text{ST}}D_{\text{GE2},2} \\ (1 - t_{\text{ST}}p_{\text{ST}})D_{\text{GE2},1} & (1 - t_{\text{ST}}p_{\text{ST}})D_{\text{GE2},2} \end{bmatrix} \end{aligned}$$

We therefore have:

$$\begin{aligned} \det(\Pi_{\text{ST}}) &= 1 - t_{\text{ST}}p_{\text{ST}} \\ D_{1,1} + D_{1,2} &= a + t_{\text{ST}}p_{\text{ST}}b \\ D_{2,1} + D_{2,2} &= (1 - t_{\text{ST}}p_{\text{ST}})b \end{aligned}$$

where $a = D_{\text{GE1},1} + D_{\text{GE1},2}$ and $b = D_{\text{GE2},1} + D_{\text{GE2},2}$. We can then write the correlation in phenotypes as:

$$\begin{aligned} \text{Corr}(P, P_C) &= \frac{\det(\Pi_{\text{ST}})}{\sqrt{(D_{1,1}+D_{1,2})(D_{2,1}+D_{2,2})}} \times \text{const} \\ &= \frac{1 - t_{\text{ST}}p_{\text{ST}}}{\sqrt{(a + t_{\text{ST}}p_{\text{ST}}b)(1 - t_{\text{ST}}p_{\text{ST}})b}} \times \text{const} \\ &= \frac{\sqrt{1 - t_{\text{ST}}p_{\text{ST}}}}{\sqrt{(a + t_{\text{ST}}p_{\text{ST}}b)b}} \times \text{const} \end{aligned}$$

which is decreasing in t_{ST}. Regarding the regression coefficient (4), we have:

$$\beta = \frac{\det(\Pi_{\text{ST}})\det(D_{\text{GE}})}{(D_{1,1}+D_{2,1})(D_{1,2}+D_{2,2})} = (1 - t_{\text{ST}}p_{\text{ST}}) \times const,$$

where the constant gathers the terms (the determinant of D_{GE} and the variance of parental traits) that do not depend on t_{ST}. Hence, the regression coefficient is decreasing in t_{ST}. □

Proof of Proposition 3: We start with the joint distribution of phenotype of parent and child. To simplify notation, we write $a = F(\tilde{\gamma})$ and $b = t_{\text{PS}} p_{\text{PS}}$. Consider the case where the phenotype that maximizes altruistic utility is $P = 1$. We have:

$$
\begin{aligned}
D &= \Pi_{1,\text{PS}} \cdot D_{\text{ST}} \cdot \begin{bmatrix} 1 & 0 \\ 0 & 0 \end{bmatrix} + \Pi_{2,\text{PS}} \cdot D_{\text{ST}} \cdot \begin{bmatrix} 0 & 0 \\ 0 & 1 \end{bmatrix} \\
&= \Pi_{1,\text{PS}} \cdot \begin{bmatrix} D_{\text{ST1},1} & 0 \\ D_{\text{ST2},1} & 0 \end{bmatrix} + \Pi_{2,\text{PS}} \cdot \begin{bmatrix} 0 & D_{\text{ST1},2} \\ 0 & D_{\text{ST2},2} \end{bmatrix} \\
&= \begin{bmatrix} 1-ab & (1-a)b \\ ab & 1-(1-a)b \end{bmatrix} \cdot \begin{bmatrix} D_{\text{ST1},1} & 0 \\ D_{\text{ST2},1} & 0 \end{bmatrix} + \begin{bmatrix} 1-b & 0 \\ b & 1 \end{bmatrix} \cdot \begin{bmatrix} 0 & D_{\text{ST1},2} \\ 0 & D_{\text{ST2},2} \end{bmatrix} \\
&= \begin{bmatrix} (1-ab)D_{\text{ST1},1} + (1-a)bD_{\text{ST2},1} & (1-b)D_{\text{ST1},2} \\ abD_{\text{ST1},1} + (1-(1-a)b)D_{\text{ST2},1} & bD_{\text{ST1},2} + D_{\text{ST2},2} \end{bmatrix}.
\end{aligned}
$$

We therefore have:

$$
\begin{aligned}
\det(D) &= ((1-ab)D_{\text{ST1},1} + (1-a)bD_{\text{ST2},1})(bD_{\text{ST1},2} + D_{\text{ST2},2}) \\
&\quad - (abD_{\text{ST1},1} + (1-(1-a)b)D_{\text{ST2},1})((1-b)D_{\text{ST1},2}) \\
&= (b-ab)D_{\text{ST1},1}D_{\text{ST1},2} \quad - (1-ab-(2b-2ab))D_{\text{ST2},1}D_{\text{ST1},2} \\
&\quad + (1-ab)D_{\text{ST1},1}D_{\text{ST2},2} + (b-ab)D_{\text{ST2},1}D_{\text{ST2},2} \\
&= (1-ab)\det(D_{\text{ST}}) + (1-a)b\left(D_{\text{ST1},1}D_{\text{ST1},2} + 2D_{\text{ST2},1}D_{\text{ST1},2} + D_{\text{ST2},1}D_{\text{ST2},2}\right).
\end{aligned}
$$

Given that $\det(D_{\text{ST}}) > 0$ and all entries in D_{ST} are positive, we have $\det(D) > 0$, and therefore a positive correlation between the phenotype of parent and child.

Next, a change in X increases the fraction $F(\tilde{\gamma})$ (abbreviated as a) of parents with phenotype $P = 0$ who aim to endow their children with $P_C = 1$. The determinant is

decreasing in a in both terms. From (4) we have:

$$\beta = \frac{\det(D)}{(D_{1,1} + D_{2,1})(D_{1,2} + D_{2,2})},$$

where the denominator (the variance of the parents' phenotype) does not depend on a. The coefficient β is therefore decreasing in a, since $\det(D)$ is decreasing in a. A shift in X that induces more parents to endow their children with a specific phenotype (higher $F(\tilde{\gamma}) = a$) therefore lowers β.

The proof for the case where altruistic parents prefer $P_{\text{PS}} = 0$ follows the same lines. □

B Computational Exercise

In this section, we provide further details on the computations underlying Figures 2 to 4.

Given the parameter values, the child's utility is always higher under risk tolerance and trust. The parent's transmission choices are then as follows:

- if the parent is risk-tolerant and trusting ($P^1 = P^2 = 1$), the parent aims to transmit the same values to the child ($P^1_{\text{PS}} = P^2_{\text{PS}} = 1$). For such parents, altruism and the desire to transmit their own type push in the same direction.
- if the parent is risk-tolerant but not trusting ($P^1 = 1$ and $P^2 = 0$), the parent aims to transmit risk tolerance for sure. The parent will also transmit trust if $\gamma < \tilde{\gamma}$, where we have:

$$\tilde{\gamma}^2(P^1_{C,\text{ST}}) = \min\left\{1, z\nu E\left\{P^1_C \chi X + 1 - P^1_C \middle| P^1_{\text{PS}} = 1\right\}\right\}.$$

  Here the expectation is over the realization of P^1_C, and we use our parametric assumption that $\log(W) + \bar{u} = 1$. The child's risk-tolerance type $P^1_{C,\text{ST}}$ after the state indoctrination stage enters the threshold because it affects the probability distribution over P^1_C. The expectation is conditional on $P^1_{\text{PS}} = 1$ because this parent aims to transmit risk tolerance, which affects the expectation.

- if the parent is risk-averse but trusting ($P^1 = 0$ and $P^2 = 1$), the parent aims to transmit trust for sure. The parent will also transmit risk tolerance if $\gamma < \tilde{\gamma}$, where we have:

$$\tilde{\gamma}^1(P^2_{C,\text{ST}}) = \min\left\{1, zE\left\{(1+\nu P^2_C)(\chi X - 1)\,|P^2_{\text{PS}} = 1\}.\right\}\right\}.$$

  Here the expectation is over the realization of P^2_C, which is a function of the child's state $P^2_{C,\text{ST}}$. Similar to the previous case, the expectation is conditional on the parent aiming to transmit trust.

- if the parent is neither risk-tolerant nor trusting ($P^1 = 0$ and $P^2 = 0$), the two thresholds above apply separately. Consider the case where $\tilde{\gamma}^1(P^2_{C,\text{ST}}) > \tilde{\gamma}^2(P^1_{C,\text{ST}})$ regardless of phenotype, which we focus on in the computed example. In this case, the relevant thresholds are

$$\hat{\gamma}^1(P^2_{C,\text{ST}}) = \min\left\{1, zE\left\{(1+\nu P^2_C)(\chi X - 1)\,|P^2_{\text{PS}} = 0\}.\right\}\right\}$$

  and $\tilde{\gamma}^2(P^1_{C,\text{ST}})$ as above. The difference between $\tilde{\gamma}^1(P^2_{C,\text{ST}})$ and $\hat{\gamma}^1(P^2_{C,\text{ST}})$ is that in the latter case, the expectation is conditional on the parent aiming to transmit low trust. For a given parent, if $\gamma > \hat{\gamma}^1(P^2_{C,\text{ST}})$, the parent will set $P^1_{\text{PS}} = P^2_{\text{PS}} = 0$ and aim to transmit risk aversion and distrust. If we have $\hat{\gamma}^1(P^2_{C,\text{ST}}) \geq \gamma > \tilde{\gamma}^2(P^1_{C,\text{ST}})$, the parent will set $P^1_{\text{PS}} = 1$ and $P^2_{\text{PS}} = 0$. Lastly, if $\gamma \leq \tilde{\gamma}^2(P^1_{C,\text{ST}})$, we have $P^1_{\text{PS}} = P^2_{\text{PS}} = 1$.

We would like to characterize how the transmission of risk tolerance and trust depends on the environment, characterized by the degree of state intervention intervention p_{ST} and the return to entrepreneurship X. In particular, we map out the regression coefficients β^1 and β^2 for the transmission of risk tolerance and trust, respectively, obtained from regressing children's on parents' phenotypes. We compute these coefficients as follows:

1. Fix a $p_{\text{ST}} \in [0, 1]$ and $X > 2$.

2. Given the initial distributions S^1 and S^2, compute the joint distributions of children's and parents' phenotypes D^1_{ST} and D^2_{ST} after the state transmission stage.

3. Compute the thresholds $\tilde{\gamma}^2(P^1_{C,\text{ST}})$ $\tilde{\gamma}^1(P^2_{C,\text{ST}})$, and $\hat{\gamma}^1(P^2_{C,\text{ST}})$ for each parental phenotype (six thresholds in total). For the expectations, use the probabilities arising for the child's phenotype $P^n_{C,\text{ST}}$ after the state indoctrination choice and the parental choice as described in the model setup.

4. Construct the share of risk-averse parents aiming to transmit risk tolerance as:

$$\tilde{\gamma}^1 = \frac{P(P^2_{C,\text{ST}}=0)\tilde{\gamma}^1(0) + P(P^2_{C,\text{ST}}=1)\tilde{\gamma}^1(1) + P(P^2_{C,\text{ST}}=0)\hat{\gamma}^1(0) + P(P^2_{C,\text{ST}}=1)\hat{\gamma}^1(1)}{2}.$$

   The factor of one-half appears because, given our assumption on the initial distribution of parental phenotypes, there are equal numbers of parents in the two relevant groups. The same probabilities appear in both terms because we start from an initial distribution where the two traits are uncorrelated.

5. Similarly, construct the share of non-trusting parents aiming to transmit trust as:

$$\tilde{\gamma}^2 = P(P^1_{C,\text{ST}}=0)\tilde{\gamma}^2(0) + P(P^1_{C,\text{ST}}=1)\tilde{\gamma}^2(1).$$

   This case is simpler because no additional distinction is needed regarding which value the parent aims to transmit in the other dimension.

6. With $\tilde{\gamma}^1$ and $\tilde{\gamma}^2$ in hand, compute the final joint distributions D^1 and D^2 as in (2), using the $\tilde{\gamma}$ applying to each trait.

7. Given D^1 and D^2, compute the regression coefficients β^1 and β^2 according to (4).

Figures 6 and 7 heatmaps of the regression coefficients for the transmission of risk tolerance and trust across a range of values of t_{ST} and X.

C Data Description

C.1 Risk Preferences

Risk preferences can be measured in the SOEP with three sets of questions. The first asks people to state their general willingness to take risks. The possible responses range from 0 denoting no willingness to take risks at all to 10 denoting very high

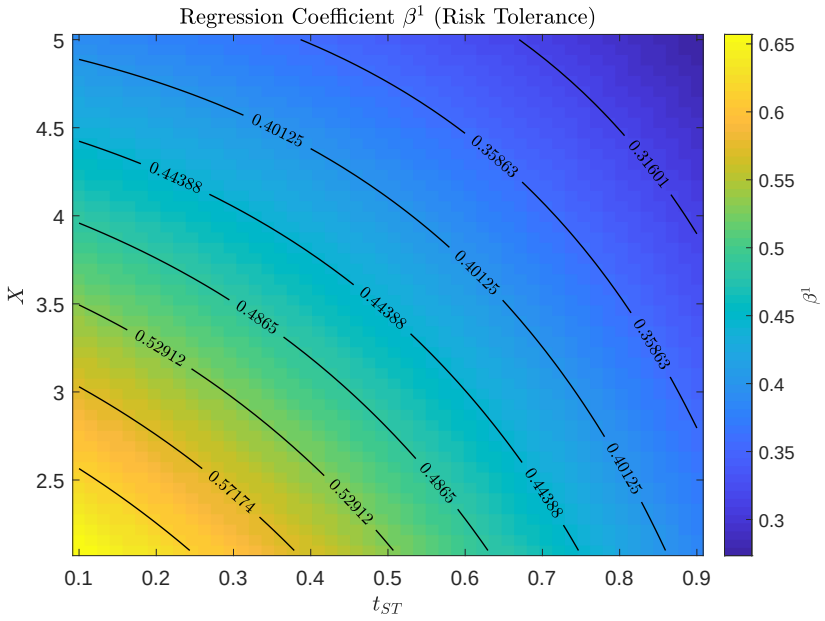


Figure 6: Heatmap of coefficients in regressions of child's on parent's risk tolerance phenotype as a function of state indoctrination t_{ST} and return to entrepreneurship X

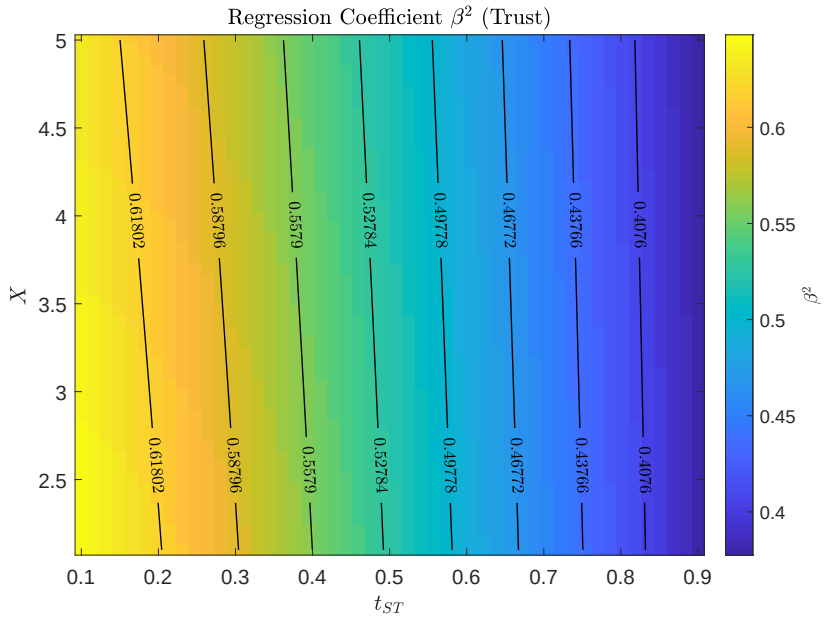


Figure 7: Heatmap of coefficients in regressions of child's on parent's trust phenotype as a function of state indoctrination t_{ST} and return to entrepreneurship X

willingness to take risks. This question was asked in 2004 and 2006 and then annually since 2008.

Second, the SOEP asks about willingness to take risks in six specific domains: driving, financial matters, sports and leisure, career, health, and trusting other people. The response values range from 0 (no willingness to take risks) to 10 (very high willingness). These questions were asked in 2004, 2009, and 2014.

Third, the survey contains a question asking how much of an endowment of EUR 100,000 the respondent would be willing to invest in a hypothetical lottery that would double or halve their investment with probability 0.5. This question was asked in 2004 and 2009. It has six response values (EUR 0; EUR 20,000; EUR 40,000; EUR 60,000; EUR 80,000; EUR 100,000).

To make the responses to these eight questions comparable, we rescale the response values to range between 0 and 1, with higher values indicating greater risk tolerance. A factor analysis reveals that these eight questions are highly correlated and form a single latent factor. Since the first, most general question is covered most frequently in the SOEP, we use it as our main measure of risk preference. As an alternative measure, we use the simple average of an individual's answers to all eight questions. In this case, we use only observations from 2004, 2009, and 2014.

C.2 Trust

Trust in strangers is captured by five questions. In three cases, respondents are asked to indicate on a scale from 1 to 4 to what extent they agree with a given statement. The three statements are: (1) "People can generally be trusted"; (2) "Nowadays you can't rely on anyone"; (3) "If you are dealing with strangers, it is better to be careful before trusting them". The fourth question asks respondents whether they think that "most people are fair or most people are exploitative." The fifth question asks whether respondents think that "most people are helpful or mostly act in their own interest." All five questions were asked in 2003, 2008, and 2013. We rescale the response values for each question to fall between 0 and 1. A factor analysis reveals that these five items reflect a single latent factor. We therefore use as our measure of trust the simple average of responses to these five questions, with higher scores indicating higher trust.

C.3 Time Preferences

Time preference captures the extent to which individuals are willing to forgo present rewards for future ones. We measure this with a question asking respondents whether they would 'generally describe themselves as a patient or as an impatient person.' We consider this a valid proxy for time preference, as self-assessed patience has been shown to be highly correlated with choices between immediate and delayed financial rewards (Falk et al. 2018). The original responses to this question range from 0 (very impatient) to 10 (very patient). We rescale them to range from 0 to 1. The question was asked in 2008 and 2013.

C.4 Negative Reciprocity

Negative reciprocity captures the extent to which people would punish others for unfair behavior directed at themselves or seek revenge. The SOEP contains four such questions. In all cases, respondents indicate on a scale from 1 to 7 the extent to which a given statement applies to them. The four statements are (1) "If I suffer a serious wrong, I will take revenge as soon as possible, no matter what the cost"; (2) "If somebody puts me in a difficult position, I will do the same to them"; (3) "If somebody insults me, I will insult them as well"; (4) "When other people wrong me, I try to just forgive and forget". Questions (1), (2), and (3) were asked in 2005, 2010, 2015, 2016, and 2017. Question (4) was asked in 2010, 2015 and 2016. We code responses such that higher values reflect a stronger tendency for negative reciprocity, and rescale them to fall between 0 and 1. For questions (1), (2), and (3), higher scores indicate greater agreement with the given statements; for question (4), higher scores indicate weaker agreement with the given statement. A factor analysis reveals that these four recoded questions reflect a single latent factor. We thus measure negative reciprocity as the simple average of the rescaled answers to these four questions.

C.5 Positive Reciprocity

Positive reciprocity reflects the extent to which people respond in kind to good deeds of others directed toward them. The SOEP survey contains three questions capturing such issues. As with negative reciprocity, respondents indicate on a scale from 1 to 7 the extent to which a given statement applies to them. The three statements capturing positive reciprocity are: (1) "If someone does me a favor, I am prepared

Table 5: Robustness Checks I

Dependent Variable:	Risk preference of children born 1977-99		
Additional controls	Religion	Height	Living alone
Parental attitudes, pre 1985	0.254***	0.259***	0.251***
	(0.03)	(0.03)	(0.03)
Parental attitudes, post 1985	0.305***	0.317***	0.301***
	(0.02)	(0.02)	(0.02)
Parental attitudes x East, pre 1985	-0.021	-0.030	-0.019
	(0.05)	(0.05)	(0.05)
Parental attitudes x East, post 1985	-0.146***	-0.174***	-0.143***
	(0.04)	(0.04)	(0.04)
Observations	22,871	18,541	22,871
R-squared	0.11	0.12	0.11

Notes: All regressions control for state-year fixed effects, demographic controls of the children and parents, a dummy variable for the post-1985, a dummy variable indicating East German families as well as the interaction between these two dummy variables. Standard errors clustered at the individual level are reported in parentheses. *** p<0.01, ** p<0.05, * p<0.1

to return it"; (2) "I go out of my way to help somebody who has been kind to me before"; (3) "I am ready to undergo personal costs to help somebody who helped me before". These questions were asked in 2005, 2010, 2015, 2016, and 2017. We rescale the response values of each question to fall between 0 and 1. A factor analysis reveals that these three questions reflect a single latent factor. We therefore measure positive reciprocity as the simple average of the rescaled answers to these questions, with higher scores reflecting a stronger tendency for positive reciprocity.

D Additional Empirical Results

D.1 Robustness Checks

In Tables 5 and 6, we assess the robustness of our main results by controlling for additional variables and modifying the regression specification.

We start by including additional control variables in Table 5. In column 1, we control

for children's religious denomination using dummy variables.[22] In column 2, we control for children's and parental height, as height has been shown to be highly correlated with risk preferences (Dohmen et al. 2011). In column 3, we control for whether children were living with their parents at the time of the survey. We do so because adult children living with their parents may be systematically different from those living on their own. As Table 5 shows, the inclusion of these additional controls leaves the main results intact.[23]

In Table 6, we estimate various alternative specifications. In column 1, we include cohort fixed effects to control for common cohort-specific trends in risk preferences. In column 2, we include family fixed effects, which hold constant family-specific factors that could affect the parent-child correlation in risk preferences, such as differences in parenting style or possible selection into who had children after reunification (Chevalier and Marie 2024). To do so, we restrict our analysis to the sub-sample of families with more than one child, requiring that for each family the parents and all their children are observed in the same wave. Thus, this specification focuses entirely on variation in birth years among children born to the same parents. While identification is difficult in this setting and relies in part on families being observed repeatedly (which generates variation in parents' and children's risk preferences across survey waves), it is reassuring to see that the main result remains intact: we still find that the parent-child correlation in risk preferences is markedly lower for East German children born after 1985 than for West German children born around the same time.[24] In column 3, we exclude respondents living in Berlin. Berlin is a special case as it was geographically located in East Germany, but part of it belonged to West Germany. Excluding residents of Berlin leaves the results intact. In column 4, we use an alternative measure of risk preference capturing multiple dimensions, such as financial matters, sports, and career (see Appendix C.1 for details). The same patterns arise for this broader measure, demonstrating that the results are not specific

[22]The categories for religious denomination are: Protestant, other Christian, other non-Christian, no religious affiliation, missing religion. The reference category is Catholic.

[23]We also investigated whether the results are robust to controlling for the number of siblings of our sample children. They are. The parent-child correlation is, not surprisingly, a bit higher for children with fewer siblings, especially among children born after 1985. However, the reduction in the parent-child correlation among East German children born after 1985 compared to those born earlier is observed and of similar magnitude regardless of family size.

[24]The parent-child correlations are markedly lower for all four groups because the family fixed effects absorb the time invariant component of parental risk preferences.

Table 6: Robustness Checks II

Dependent Variable:	Risk preference of children born 1977-1999				
Specification	Cohort fixed effects	Family fixed effects	Exclude Berlin	Alternative DV	First obs. only
Parental attitudes, pre 1985	0.254***	0.138***	0.247***	0.385***	0.325***
	(0.03)	(0.04)	(0.03)	(0.03)	(0.04)
Parental attitudes, post 1985	0.302***	0.243***	0.302***	0.453***	0.292***
	(0.02)	(0.03)	(0.02)	(0.03)	(0.02)
Parental attitudes x East, pre 1985	-0.024	0.004	-0.016	-0.078	-0.065
	(0.05)	(0.07)	(0.06)	(0.06)	(0.07)
Parental attitudes x East, post 1985	-0.142***	-0.110**	-0.130***	-0.138**	-0.072*
	(0.04)	(0.05)	(0.04)	(0.05)	(0.05)
Observations	22,871	9,696	22,072	6,045	5,862
R-squared	0.12	0.32	0.11	0.19	0.09

Notes: All regressions control for state-year fixed effects, demographic controls of the children and parents, a dummy variable for the post-1985 period, a dummy variable indicating East German families as well as the interaction between these two dummy variables. Standard errors clustered at the individual level are reported in parentheses. *** p<0.01, ** p<0.05, * p<0.1

to our baseline measure of risk tolerance.

Our main sample includes multiple observations per family since members may have answered the risk preference question in multiple survey rounds. We have accounted for this by clustering standard errors at the child level, but one may still be concerned about possible biases resulting from oversampling of some families. To address this, in column 5 we use only the first observation for each family. While the magnitudes change and the coefficients are less precisely estimated due to the smaller sample size, the qualitative pattern remains: a lower parent-child correlation in risk preferences among East German children born after 1985 compared to West German children born around the same time and compared to East German children born earlier. This indicates that the results are not driven by families appearing in the dataset multiple times.

D.2 Bin-scatter Plots for Trust, Patience, and Reciprocity

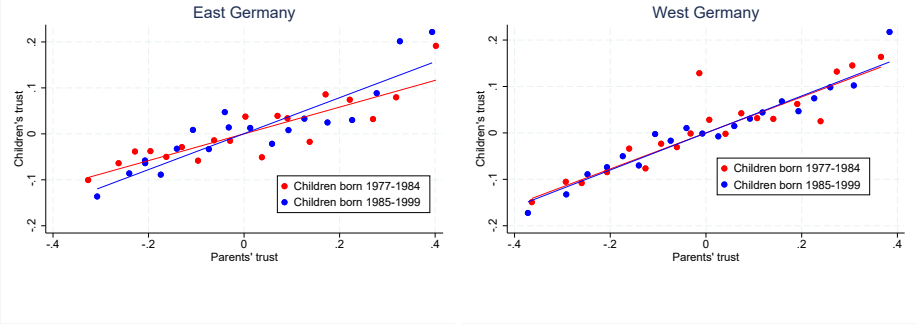
To supplement the regression results reported in Table 4, Figure 8 presents binned scatter plots showing the parent-child correlations in trust, patience, and reciprocity. As in Figure 5, we have demeaned children's and parents' preferences in all cases.

D.3 Results for Other Attitudes

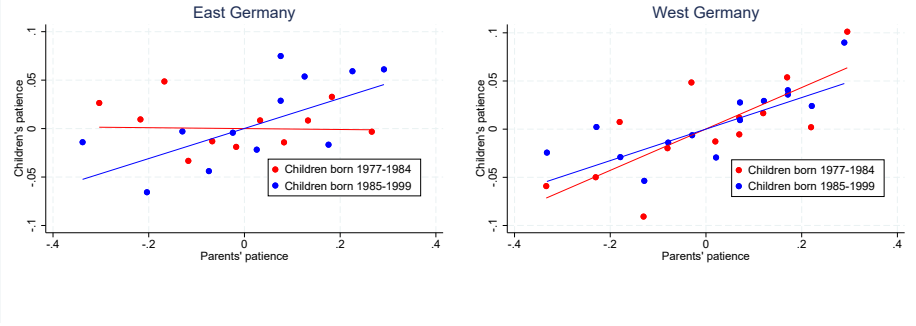
In this section, we estimate our preferred specification of Table 2, column 3, for a number of other attitudes we can observe in the SOEP. The results are shown below in Table 7.

Column 1 considers views on fairness. These are commonly captured by people's views on how much control they have over their lives and whether outcomes are mostly determined by hard work or luck (Alesina and Angeletos 2005). We capture views on fairness with a similar set of five questions. Respondents indicate on a scale from 1 to 7 the extent to which each statement applies to them. The four statements are (1) "What you achieve depends on luck"; (2) "Others make the crucial decisions in my life"; (3) "When problems arise, I doubt my abilities"; (4) "Possibilities are defined by social conditions"; (5) "I have little control over my life". We rescale the response values to fall between 0 and 1 and measure views on fairness as the simple average of these rescaled responses, with higher scores reflecting a greater sense of little personal control.

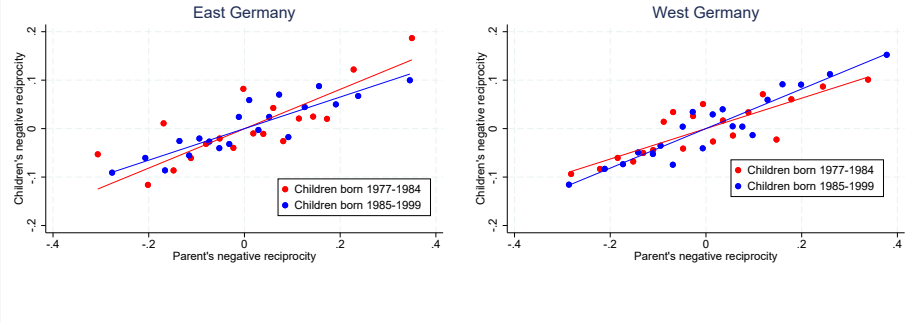
Panel A: Trust



Panel B: Patience



Panel C: Negative reciprocity



Panel D: Positive reciprocity

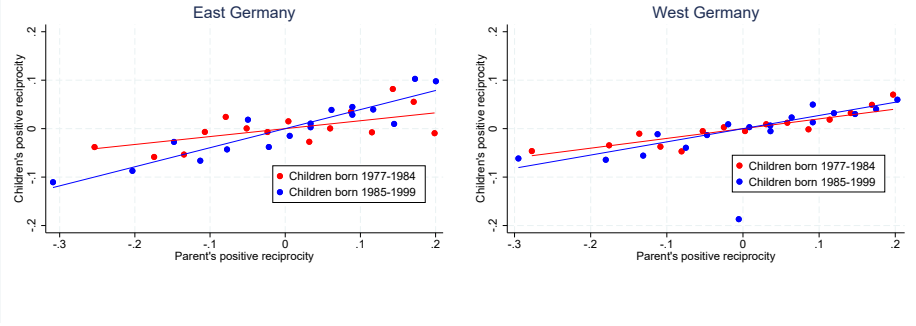


Figure 8: Parent-child Correlations in other preferences

Table 7: Results for Other Attitudes

Dependent Variable:	Views on fairness	Polit. views	Citizen influence	Price stability	Freedom of speech	Family	Materialism	Success
Parental attitudes, pre 85	0.414***	0.414***	0.347***	0.289***	0.274***	0.333***	0.258***	0.370***
	(0.05)	(0.05)	(0.04)	(0.04)	(0.04)	(0.04)	(0.03)	(0.05)
Parental attitudes, post 85	0.357***	0.438***	0.260***	0.260***	0.265***	0.233***	0.262***	0.323***
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.02)	(0.03)
Parental attitudes x East, pre 85	-0.260***	-0.116	-0.112	-0.080	-0.004	-0.211***	-0.081	-0.141
	(0.09)	(0.09)	(0.07)	(0.07)	(0.07)	(0.07)	(0.06)	(0.10)
Parental attitudes x East, post 85	-0.073	-0.016	0.010	-0.023	-0.063	-0.074	-0.004	-0.101*
	(0.06)	(0.06)	(0.07)	(0.06)	(0.07)	(0.06)	(0.04)	(0.05)
Observations	3,621	3,584	3,593	3,569	3,592	7,879	7,916	3,623
R-squared	0.14	0.14	0.08	0.14	0.14	0.14	0.08	0.14

Notes: All regressions control for state-year fixed effects demographic controls of the children and parents, a dummy variable for the post-1985 period, a dummy variable indicating East German families as well as the interaction between these two dummy variables. Standard errors clustered at the individual level are reported in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Column 2 considers political views. We measure this with a standard question asking respondents to describe their political views on a scale from 1 (completely left) to 10 (completely right).

Columns 3, 4, and 5 consider how much importance individuals attribute to certain political goals: greater political influence of ordinary citizens, price stability, and freedom of speech. Higher values indicate that these goals are considered more important.

Column 6 considers the importance of family. This is measured as the simple average of two questions asking how important it is to have a happy marriage or partnership and to have children.

Column 7 considers materialism. This is measured as the simple average of two questions asking how important it is to afford things and to be successful in one's job.

Finally, column 8 considers views on what determines success in life. This is measured as the simple average of three questions asking about the extent to which one's life course depends on oneself, whether hard work is necessary for success, and whether inborn abilities matter more than effort.

While the patterns vary somewhat, they broadly resemble what we observed for trust and patience: Parent-child correlations are lower for East German children born before 1985 than for West German children born around the same time and similar for East and West German children born after 1985. This suggests that for these attitudes too, the presence and subsequent disappearance of state indoctrination in East Germany is an important mechanism driving the parent-child correlation.

D.4 Transmission from Mothers versus Fathers

In the baseline estimations, we use the simple average of the mother's and father's risk preferences as our measure of parental risk preference. Here, we consider whether mothers and fathers play different roles in preference transmission. We explore this in Table 8.

Column 1 focuses on the father's risk preference and column 2 on the mother's. In columns 3 and 4, we include the risk preferences of both parents jointly, along

Table 8: Transmission from Mothers versus Fathers

Dependent Variable:	Risk preference of children born 1977–1999			
Specification:	Parents separately		Parents jointly	
	Father	Mother	Father	Mother
Parental attitudes, pre 85	0.161***	0.159***	0.128***	0.124***
	(0.02)	(0.02)	(0.02)	(0.02)
Parental attitudes, post 85	0.170***	0.180***	0.145***	0.157***
	(0.02)	(0.01)	(0.01)	(0.01)
Parental attitudes × East, pre 85	-0.018	-0.029	-0.006	-0.014
	(0.04)	(0.04)	(0.04)	(0.04)
Parental attitudes × East, post 85	-0.052*	-0.116***	-0.033	-0.112***
	(0.03)	(0.03)	(0.03)	(0.03)
Observations:	22,871	22,871	22,871	
R-squared:	0.1	0.1	0.12	

Notes: All regressions control for state-year fixed effects, demographic controls of the children and parents, a dummy variable for the post-1985 period, a dummy variable indicating East German families, as well as the interaction between these two dummy variables. Standard errors clustered at the individual level are reported in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

with the corresponding interaction terms. The relative decline in the parent-child correlation among East German families is much more pronounced for transmission from the mother than from the father. Columns 3 and 4 show that this decline is entirely driven by mothers. The East-West differences in father-child correlations are close to zero and statistically insignificant for both cohorts.

This pattern can be rationalized by the fact that mothers tend to be more involved in childrearing. If the lower parent-child correlation reflects parents actively instilling higher risk tolerance after the transition to a market economy—as we argue throughout—we would expect deviations from parental risk preferences to be more pronounced for the more involved parent. In our data, these are the mothers.[25]

[25]Mothers are more involved in all the 13 categories of parental involvement that we used to construct the parental involvement indicator.

Table 9: Gender Differences in Cultural Transmission

Dependent Variable:	Risk preference of children born 1977-1999	
	Males	Females
Parental attitudes, pre 1985	0.260***	0.250***
	(0.05)	(0.05)
Parental attitudes, post 1985	0.291***	0.312***
	(0.04)	(0.03)
Parental attitudes x East, pre 1985	-0.053	-0.024
	(0.07)	(0.08)
Parental attitudes x East, post 1985	-0.157***	-0.133**
	(0.05)	(0.05)
Observations	11,832	11,039
R-squared	0.09	0.12

Notes: All regressions control for state-year fixed effects, demographic controls of the children and parents, a dummy variable for the post-1985 period, a dummy variable indicating East German families as well as the interaction between these two dummy variables. Standard errors clustered at the individual level are reported in parentheses. *** p<0.01, ** p<0.05, * p<0.1

D.5 Gender Differences in Transmission

In this section, we explore whether there are gender differences in preferences transmission, which have been shown to be important in other dimensions (e.g., Almås et al. 2016). To do so, we run the baseline regression reported in Table 2, column 3, separately for male and female children. The results are displayed in Table 9. Qualitatively, both groups show the same pattern: a lower parent-child correlation in risk preferences among East German children born after 1985, but no East-West difference among children born before 1985. Quantitatively, the pattern appears more pronounced for male children, but the coefficients are not statistically distinguishable.